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Journal of the United Service Institution of India.

Vol. XL—1911.

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THE JOURNAL

OF THE

United Service Institution of India.

Vol. XL.

January 1911.

No. 182

SECRETARY'S NOTES.

I. NEW MEMBERS.

The following Members have joined the Institution during the months of September October and November 1910:—

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|--|---|
| 132 Captain R. W. Gaskell. | 144 Lieutenant C. A. Bird. |
| 133 Major G. Bailey. | 145 Captain G. Aylmer. |
| 134 Lieutenant J. G. Leeky. | 146 Lieutenant J. S. Dallas (Life Member). |
| 135 Major G. H. Boileau. | 147 Colonel H. D. Drake. |
| 136 Captain R. J. Ingham. | 148 Captain H. D. Belgrave. |
| 137 Major E. Kirkpatrick. | 149 Captain H. B. D. Baird. |
| 138 S. Finney, Esq., C.I.E. | 150 Major G. E. Tyrrell (Life Member). |
| 139 Brigadier-General H. P. Hickman. | 151 Captain W. E. Hume Spry. |
| 140 Captain G. B. Brown. | 152 Lieutenant B. H. Bonham-Carter (Life Member). |
| 141 Colonel J. E. Dickie, C.B. | 153 Captain C. G. Ames. |
| 142 The Honourable Mr. R. W. Carlyle, C.S.I., C.I.E. | 154 Captain T. Milne. |
| 143 Major F. F. Granger, I.M.S. | |

II. TACTICAL SCHEMES (Q. I. Series).

To assist officers studying for Q. examinations, tactical schemes are issued by the Council of the Institution, to members only, on the following terms :—

Rupees 5 per scheme, or Rs. 50 for a complete series of ten schemes, these charges including criticisms and solutions by a fully qualified officer selected by the Council.

Two revised sets of schemes (Series IV and V, 10 schemes in each series) are now available.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, who will forward them to the appointed officer.

III. MILITARY HISTORY PAPERS.

In order to assist candidates for the Staff Colleges and other officers in the study of military history, the Council of the Institution have decided, as a tentative measure, to issue, to members only, sets of questions on selected campaigns. The following papers are now available :—

- (a) Two sets of six questions each on the Indian Mutiny.
- (b) Two sets of six questions each on Callwell's Small Wars.
- (c) Two sets of six questions each on the strategy of the Russo-Japanese War.
- (d) Three sets of six questions each on the Battles of the Russo-Japanese War.

The charge for these papers is Rs. 5 each, or Rs. 45 for the set of nine, including criticisms by fully qualified officers selected by the Council.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, who will forward them to the appointed officer.

IV. CHANGES OF ADDRESS.

Members are requested to keep the Secretary informed of all changes of rank, title or address.

V. GOLD MEDAL ESSAY COMPETITION.

Officers competing in the Gold Medal Essay Competition, 1910-11, are requested to submit their Essays in triplicate.

NORTHERN ARMY PRIZE ESSAY, 1910.

BY CAPTAIN W. G. K. GOUGH, 15TH SIKHS.

SUBJECT.—“Les habitudes prises dans les manœuvres de paix ne se modifient pas pendant la guerre, ou se modifient que fort lentement et imparfaitement.”

(*Extract from “Enseignements de deux guerres récentes”*)

Habits contracted at manoeuvres either cannot be altered in war, or can only be altered very slowly and imperfectly.

The moral of this would appear to be that peace training should be such that it will require no modification in time of war, or if it requires any at all, it should require the least possible amount, that is to say, peace training should as far as possible be carried out under such conditions as would obtain in time of war. That this point has been fully realised must be obvious to all who have studied the manoeuvres of late years, not only in England and India, but in all European countries and in the States and Japan, and noted under what different conditions they are carried out nowadays, to what they were a few years ago.

This tendency is the outcome of the South African war. At the end of the war there was a great outcry, not only in England, but throughout the civilised world, and a new school arose, which insisted that modern inventions necessitated new tactics, and that “principles” of tactics and strategy, which had held good in the days of Napoleon, and later of Moltke, could not be applied under present conditions. In France, General Langlois, late member of the “Conseil Supérieure de la Guerre,” took up the cudgels on behalf of the old school and has published a book entitled “Enseignements de deux guerres récentes,” in which he conclusively proves that the principles of tactics remain the same, and that modern inventions have merely rendered necessary certain modifications in their application. He goes further and shows that the reverses of the Russians in their attacks on Plevna in 1877, and our reverses in the initial stages of the South African war were due entirely to these principles not being adhered to in the training of the troops before the war. It is from this book of General Langlois’ that the text of this essay is taken, and I propose to start by dealing briefly with examples taken therefrom.

General Langlois attributes the reverses of the Russians at the first two battles of Plevna to the following causes:—

- (1) Attacks were not preceded by reconnaissances of the positions.

NORTHERN ARMY PRIZE ESSAY, 1910.

- (2) The Russian forces were dispersed, and separated attacks did not co-operate in any way.
- (3) No attempt was made to find out the weak point of the defence, and push home the attack against it, but attacks were delivered on a preconceived plan.
- (4) Attacks were preceded by artillery preparation, no infantry advance being made till the artillery bombardment was finished; by that time the artillery were short of ammunition and unable to assist the infantry: thus there was no combination between the two arms.
- (5) The "lines" or "waves" of the infantry attack were at such great intervals, that by the time succeeding "waves" came up, the line they had come to support had become immobilized, and so was unable to help them; thus succeeding waves wasted themselves in crossing, unsupported, the same ground, the crossing of which had brought the preceding line to a halt: they thus suffered in the same way as the preceding wave, and so by the time they had come up, they had lost all their vigour, and were unable to push or "carry on" the line or lines they came up to support.
- (6) The Russians did not attempt to gain the upper hand by superiority of fire, nor did they attempt, on gaining any point, to entrench against a possible counter-attack.
- (7) Practically no general reserve was kept in hand at the disposal of the commander; and in both battles the reserve, such as it was, was frittered away.

Let us now consider the lines on which the Russians were trained to attack during their peace manoeuvres.

The Commander invariably decided in his own mind, what he considered to be the "key of the position," and, without further reconnaissance, issued his orders for the attack. This always consisted of an artillery bombardment on the enemy's trenches, unsupported by either infantry fire or an infantry advance. When it was considered that the artillery had sufficiently prepared the way, the bombardment ceased, and the infantry attack was launched; it usually consisted of a main attack against the preconceived "key of the position," and one or two subsidiary attacks, which were as a rule absolutely independent and in no way supported each other. The infantry advanced in columns without firing until the effects of the enemy's fire was felt; they then deployed and a line of skirmishers would advance as far as it was considered possible; a second line or wave would then come up to help it on, and similarly, later, a third wave would come up; the intervals between waves was invariably kept as large as possible, the second and third waves not being sent forward till the preceding wave had been brought to a standstill. There was, moreover, never any attempt at massing in depth against the decisive point. Again when any point was gained, it was not considered necessary to improvise cover, to enable

it to be held. As General Langlois says, "In consequence of his previous training, the Russian despised fire as he despised cover." Lastly, it was not considered necessary for the commander to keep more than a very small proportion of his force in reserve, the idea engendered at manœuvres being that it should be utilised bit by bit as asked for by subordinates. It was not realised that by thus shedding his small reserve, the commander virtually abdicated his command.

Hence it will be seen that the first two Russian attacks on the Turkish position at Plevna failed, not through want of dash or valour, but through being conducted on wrong lines, but at the same time on those lines on which the Russian troops had been trained in peace.

After the second battle, however, General Imeretinsky and General Skobeleff realised that to gain success the Russian methods must be altered.

In the third battle, Skobeleff was in command of the southern attack; and was ordered by General Imeretinsky to put out an advanced guard in his advance on Lovcha, for the purpose of seizing artillery positions and reconnoitring the Turkish position. Skobeleff further stated that he considered it essential that exact information should be obtained regarding the ground to be crossed; that all positions occupied should at once be placed in a state of defence against counter-attack; that strong reserves should be told off and the enemy's weak points sought for: but he also, in his orders, laid particular stress on careful artillery preparation before the infantry advance. Could we want a better example of the truth of the subject of this essay? It required the teachings of two great battles to make Skobeleff, the finest of the Russian generals, realise that he must modify his methods, but even then he could not bring himself to do without the artillery preparation, prior to the infantry advance, which he had come to look on as essential, but which was nothing more than a waste of good ammunition; the other Russian generals could not even modify their methods as much as Skobeleff.

A further example of the difficulty of modifying methods learnt in peace, even though the necessity of so doing has been realised, is to be seen in the action of the 8th September 1877:—Skobeleff, as has been shown, had issued orders that every position captured was at once to be placed in a state of defence against counter-attack; but this had not been the custom of the Russians, the troops had not been trained on these lines, and so we see the 5th Regiment, in their attack on the south of Plevna, after gallantly gaining the second of the three crests, being turned out again, simply and solely because they had failed to fortify it immediately they gained possession.

To take one more example from this campaign. We have seen how Skobeleff had realised the necessity of altering and modifying his methods. In the third battle of Plevna he was commanding the south-western attack, and his was the only

attack to be partially successful, thanks to his having reconnoitred the position, having sought for and found the weak points, having entrenched each successive position gained, and having made good use of his artillery and local reserves. By the evening of the 7th, he had captured redoubts Nos. 7 and 8, between Krishin and Plevna, but he could then get no further, although he retained his position throughout the night; here surely was a case for the employment of a general reserve. Had more troops been sent to reinforce Skobeleff, he would have been able to effect an entry into Plevna, and the battle would have ended in a glorious victory for the Russians, instead of a defeat for the third time, but, unfortunately, Sotov, the Commander-in-Chief, had failed to realise the lessons of the previous battles and to modify and alter his methods accordingly: he had made no arrangements for mutual support between the different attacks, and had only told off a very small general reserve (one-eighth of his total force), and this he had frittered away, and so was unable to support or reinforce Skobeleff at the crucial moment.

Let us now turn for a while to the South African War. The conditions of this war were certainly very different to those that would obtain in any European war, but for this reason, perhaps, the campaign affords excellent examples of the difficulty of modifying methods; though on the other hand it would be a mistake to assert that the methods we eventually adopted to quell the Boers would be suitable against a European foe. But our reverses in the earlier part of the war were not only due to unsuitable methods, but to a misapplication of the primary principles of tactics, and to our failing to modify our methods. General Langlois has some trenchant remarks to make on the subject: he says in his remarks on the Battle of Colenso—"We find on the English side.....all the errors of the Russians at Plevna, but to a worse degree." General Langlois goes into details of actions, but for the purpose of this essay it will be sufficient if we sum up the mistakes to which he attributes our reverses and failures. He deals with the actions of Colenso, December 15th, 1899, the second attempt to relieve Ladysmith, ending with the action of Spionkop, January 24-25th, 1899, and Magersfontein, 11th December 1899; and our mistakes as investigated by him may be summed up as under:—

"No proper reconnaissance or protective measures previous to or during the fight.

Preconceived plans of battles, with no idea of searching for the weak point and making a decisive attack against it.

Engagement along the whole front, with no reserves, no idea of 'impetus' from rear to front.

Wrong ideas on the artillery combat and artillery preparation.

Want of co-operation between units and between the three arms.

Want of initiative."

If we carry our minds back to the nineties, and consider our training in those days, we will remember that we had then no such

book as "Combined Training," but that each arm had its own drill book, and thus from the beginning we failed to teach the absolute necessity of combination of the three arms. The only publication to guide us in this matter was General Clery's "Minor Tactics," a most excellent book in its way, but one which, instead of laying down the broad principles, and suggesting how to adapt them under varying circumstances, laid down an absolute law on the application of tactics which remained the same whatever the circumstances. Thus it came about that we were trained to fight on stereotyped lines, and our officers and men were imbued with the idea that it was a crime to depart in any way whatever from the laws laid down in the drill books and in Clery.

Now to consider General Langlois' criticisms.

All three drill books—cavalry, artillery and infantry—laid down that the battle must be preceded by a reconnaissance, but details as to the reconnaissance were only given in the cavalry drill book, and thus it became the duty of the cavalry, only, to reconnoitre. The next step which was laid down in all three drill books was the artillery preparation, details of this being laid down only in the artillery drill book, so that cavalry and infantry, to say the least of it, were vague on the subject; all that the infantry knew was that their work did not commence till the artillery preparation was over. Then came the infantry combat and this in the same way was laid down only in the infantry drill book. Moreover in those days, manoeuvres on any large scale were the exception, not the rule; and each arm used to be trained independently of the others. How then, in the circumstances, could we expect co-operation between the arms. General Langlois sums up our methods of training very pithily in the two following sentences:—"The English drill books were as good as those of other nations but they were not connected by a general common doctrine;" and again, "The English took no steps in peace to create and strengthen any union between the arms, and evil overtook them."

Burde's book entitled "Tactical Principles" is well worthy of study. He points out very clearly how principles remain the same, but that from time to time, the methods of applying them require modification. He explains how in the days of short range rifles, the chief duty of the advanced guard was to guard against surprise; smoke-producing weapons very soon showed up the extent of a position, and so reconnaissance became a secondary consideration; and since protection is very closely bound up with reconnaissance, it too became of secondary importance. Our troops (and in fact all armies) were trained with this idea, and thus it came about that we merited General Langlois' criticism, that we went into action without proper reconnaissance or protective measures.

General Langlois also accuses us of preconceiving our plans of battle; but this again was what we were trained to do. Every detail was laid down in the drill book, even to the exact number of yards from the position at which each wave was to come up. I myself have

very vivid recollections of practising the attack on the parade ground of a certain small hill station. The parade ground was only about 500 yards long. The regiment would be drawn up at one end of the ground and the attack would be launched. By imagining one yard to represent three yards, we could just fit the first phase of the attack into the length of the ground ; we would then be marched back to the other end of the ground, be drawn up as we had finished at the far end, and then be put through the second phase ; and similarly with the third phase. Of course it follows that by thus doing everything by rule, there was a lack of initiative on the part of commanders. To this lack of initiative then we can attribute commanders not going to each other's help without direct orders, or, in other words, the lack of mutual support of which General Langlois accuses us.

In fact we may say that the mistakes to which he attributes our reverses were inter-dependent on each other and that they were all the result of our previous training. Now, Burde shows very clearly how up to a comparatively short time before the war, the lines on which our troops were trained were quite correct ; he explains how the artillery duel was at one time a necessary preliminary to the battle : how close order fighting and perfection in drill were necessary with slow loading weapons, and that preconceived plans were the outcome of perfection of drill, and that it was by such plans that battles were won, until modern inventions gave greater independence of action, and so made the preconceiving of plans much harder. But where we went wrong was in not keeping up to date ; the campaigns of 1866, 1870, and 1877 all showed that though the same principles held good as had done in the days of Napoleon and Wellington, yet even inventions which were modern in those days necessitated different methods in their application. If modification of methods, then, was necessary in the seventies, how much more so must it have been in 1899, when we consider the vast improvements that were made in arms and armaments in the eighties and nineties. But we realised none of this ; we failed to learn our lesson in peace time, and we had to learn it in war. We very soon realised that our reverses were due to our methods being fundamentally wrong and that we must therefore alter them : but that to modify in war methods adopted in peace, is easier said than done, and, at the best, is a very slow process, is clearly demonstrated by our long list of reverses, and by the fact that it was not till the arrival of Lord Roberts at the front, when we adopted totally different methods, both strategical and tactical, that we began to make headway. The best individual example is of course to be drawn from the battle of Magersfontein. We were so obsessed with the idea that a position must be prepared by artillery before it could possibly be attacked by infantry, that we actually had recourse to an artillery bombardment preparatory to a night attack, thereby effectively doing away with any idea of surprise (one of the secrets of success), and merely preparing the Boers to receive us.

So much for the South African war. We now come to the war between Russia and Japan, and I propose to try and show that General Langlois' remarks apply equally well to this campaign as to the two campaigns he himself has illustrated.

More has probably been written on the subject of this campaign than on any other. The reason is not far to seek. We have at last realised that the principles of strategy and tactics do no change, but only the method of applying them under varying circumstances. It is essential then that a close study should be made of these principles, and of the extent to which it has been necessary to modify them under different local conditions, if we are to hope for any big success in future wars. And so every man who is qualified is now encouraged to write, and a great number more do so in the hopes of bringing themselves to notice. From this large amount of literature one gets many opinions on the war, but all authors agree as to the causes of the success of the Japanese and the failure of the Russians. The causes in both cases may be summed up in the two words—"Preparation and Training." To take the case of the Japanese first. For ten solid years, they had been preparing and training for this war; they had made a close study of the theatre of war and local conditions, and moreover had studied the characteristics of their enemies, and had ascertained as far as possible to what extent it would be necessary to modify accepted principles of strategy and tactics. They thus knew exactly what they wanted and so trained their troops, laid their plans, and made their arrangements accordingly, and finally by judicious politics they brought on the war at the time they considered most opportune for themselves. Further, by a prompt seizure of the initiative, they created for themselves the best and most favourable conditions. In other words, they were able to arrange that the campaign should be fought under the very conditions to which they had previously trained their troops in peace; and it follows that their methods therefore required very little modification; and thus the difficulty of unlearning lessons learnt in peace, and, learning new ones in time of war, is not well exemplified tactically. Far be it from me to say that the Japanese made no tactical errors, and therefore had no mistakes to correct; but the Russians were so slow to take advantage of their opportunities that the Japanese were sometimes able to commit errors and disregard principles with impunity (for example Kuroki putting all his reserves in the firing line at Liao Yang), and so the difficulty of remedying defects was not brought home to them. Two examples, however, though hardly tactical, stand out prominently, and show the difficulty of remedying initial errors. All writers on the war agree that the main cause of the slowness of the Japanese advance was due to the breakdown of their transport. Their transport organization was their one great error: it was organized with a view to a great campaign in Manchuria, but the Japanese had falsely appreciated their requirements and thus their transport was unsuited to the country and broke down at the very beginning of the war;

and throughout the war, it was the difficulty of transport, and consequently of supply, which hampered their generals. This well exemplifies how nigh impossible, (and if possible at all, what a very slow process) it is, to modify and rectify in war arrangements made in peace. The second example is strategical rather than tactical, but at the same time tends, I think, to prove the same point. All the Japanese plans had been very carefully thought out and prepared in peace, and everyone, from the highest to the lowest, knew precisely what each had to do. As long as the campaign ran on the lines that had been thought out by the General Staff (even though slowly), matters went comparatively well. The Russian fleet had been bottled up in Port Arthur, and the three Japanese armies were making their pre-arranged converging advance on Liao Yang, when on the 10th August 1904, some of the Russian fleet escaped. This unexpected and unlegislated-for event temporarily paralysed the movements of the three Japanese armies, thus showing how difficult it is to carry out plans, if moves are made which have not been previously calculated on and reckoned for, or, in other words, how difficult it is to alter pre-arranged methods, during the stress of war. And surely if this applies to strategy, it applies equally forcibly to tactics.

Let us turn now to the Russian side. The first point we notice, such is the irony of fate, is that their commander-in-chief was Kuropatkin, who in 1877 had been Skobelev's chief staff officer, and as such had realised that peace training must be carried out as far as possible under conditions to be expected in war. That he had realised this is shown by the excellent notes which he wrote after the attack on Lovcha. This makes it all the more extraordinary that in 1904, their reverses, as at Plevna, should have been directly attributable to their faulty methods of peace training, though it is worthy of record, here, that Skobelev once said to Kuropatkin, "As a second you are perfect, but God forbid that you should ever aspire to the leadership of armies."

But to return to our subject. All writers are again agreed that the Russian reverses were due to faulty training, and so this point needs no further demonstration. My object now, therefore, is merely to show how difficult it is to correct during a war the errors of peace training. To do this I propose to take some of the numerous criticisms on the battle of the Yalu, and then to see how the various mistakes or faults brought to light continued to occur in the subsequent battles. First, then, the Russians took up an enormous front at the Yalu, which meant weakness everywhere and strength nowhere. One would have thought that their first defeat would have made them think twice before taking up an extended position again; yet we see the same mistake occurring throughout the campaign, even as late as the battle of Mukden, when they took up a front of 100 miles. Again it is said that at the Yalu the enormous Russian losses were due in a great measure to the close formations they adopted. The Japanese too were in fairly close

order, but they learnt their lesson and widened their extensions. The Russians, on the other hand, were unable to alter the methods they had learnt in peace, and even at the Motienling—on one of the few occasions they assumed the offensive—we read of their advancing in “serried masses.”

One reason why the Russians were always on the defensive was that they had been trained to the firm belief that the best means of attaining success was by taking up a defensive position with the intention of assuming the offensive when opportunity offered. This, as Napoleon has said, is the most difficult operation in war; and the experience of the campaign we are discussing certainly showed it to be beyond the powers of the Russians. However, the idea had been so strongly impressed on them in peace that they were unable to modify it when it was found not to answer in war, as is shown by the fact that when Stackelberg was despatched to the relief of Port Arthur, as soon as he got into touch with Oku, he took up his defensive position at Telissu. Granted that his orders were vague and misleading, it must be admitted that, had he broken with the old methods, and acted with vigour, in accordance with the spirit rather than the letter of his orders, he would have had a much better chance of success.

Another fault of their peace training was the misuse of their reserve. At the Yalu, their general reserve was some five or six miles away on their right, and consequently was useless; but here again they failed to learn the obvious object lesson, for were not their reverses at Telissu and Tashi-chiao directly due to the general reserves being in the wrong places and also to their misuse. This is all the more extraordinary, when we recollect that it was misuse of the reserves which in a measure led to their reverses at Plevna.

One matter in which they did modify their methods was in the construction of cover, but even in this the process of modification took some time. At the Yalu, we read, their trenches were all on the crest line, and no attempt had been made to conceal them; at Nanshan, they took the first step in the modification of their methods, by placing their trenches below the crest line, but even then newly turned earth made them visible from some distance; and it is not till the battle of Liao Yang that we hear of their trenches and works being carefully sited and well concealed.

So far, in my attempt to prove the truth of the subject of this essay, I have merely taken examples from the two campaigns dealt with by General Langlois in his book, and from the Russo-Japanese war, the only great war that has taken place since the book in question was written. But to go further afield, we get, in the 1870 war, an excellent example of how hard it is to make troops do in war otherwise than they have been trained to do in peace. Moltke, at the beginning of the war, issued instructions to the effect that “the cavalry should be sent well out and should be supported by advanced guards pushed well forward, so as to allow armies, in case of need, time to concentrate;” but if we read any

account of the war, we notice these instructions were not properly carried out, and surely the reason is not far to seek. It was because they were not understood by either officers or men, owing to their not having been trained on these lines.

And again in 1897, in Tirah, at Saran Sar, in November of that year, we see a battalion suffering very severely, owing to the fact that they were retiring as they had been trained to do in the plains of Southern India, and that they had not yet modified their methods to suit the local conditions, although they had been on service for some two months. Sir William Lockhart then issued his memorandum on the peculiar methods suitable when fighting against the Afridis, but we again see a piquet walking into an ambush in the Charnkanni country (December 1897) and being shot down to a man solely because they had not modified their methods as ordered; and yet again in February 1898, two more battalions were very roughly handled (Shinkimar), partly owing to a mistake in orders, but partly also to faulty methods.

One other example, though not culled from the history of any war, will show how difficult it is to break men of habits contracted in peace. It happened on manœuvres a few years ago. A native officer was in command of a section of an outpost line. This particular native officer had spent most of his service in the drills, and had also been jemadar adjutant, and he had got very much into the habit of imagining things, especially in outpost work, from teaching squads of recruits the theoretical elements of the work. For instance, when teaching them the duties of a piquet, he would tell them to "imagine" there was a piquet on their right and a detached post on their left, and so on. On this particular occasion, after he had put out his piquets, I went round to inspect, and finding no examining post where I considered there should have been one, I asked him why he had not arranged for one. He told me he had, but that it did not actually exist, as he had considered it sufficient to tell the men to imagine it was there: he seemed hurt, too, when I was annoyed, and said "Oh, but Sahib, this is only 'Siklai ki bat'; of course in real war, I should have had one". I have no doubt he would have too, as he was a man with his wits about him, but I have quoted the case in order to show how difficult it is to rid one self of habits once acquired; and if it is difficult to do so in peace, I think it will be readily admitted it must be a hundredfold more difficult in war.

Finally, I have tried to prove that as troops are trained in peace—in fact, not only troops but leaders—so they will act in war, and hence we deduce the conclusion that to be perfect in war we must be perfect in peace: "*il ne sera pas alors nécessaire de modifier pendant la guerre les habitudes prises dans les manœuvres de paix.*" On the other hand it is an accepted fact that it is morally and physically impossible exactly to assimilate peace to war conditions; that being so, we must make it our chief effort to get as near as possible to the ideal, so that the modifications

to be made, when it comes to war, may be as few as possible. I do not propose to quote from our training manuals, but it must be evident to all who knew our drill books of some years ago, who have studied Combined Training, and who now study our Field Service Regulations, and Training and Manœuvre Regulations, what great advances we have made in the last few years, and what efforts we are now making to ensure that manœuvres should be carried out under conditions as far as possible similar to such as would obtain in war. But, there are new inventions being brought out every day, and until we have tried them practically, we cannot say exactly how they will influence, or what modifications they will necessitate in our methods in time of war. And last, but far from least, there is the moral factor, which we can never quite account for, and which, as Napoleon has said, is as 3 to 1 to the physical. Granted, then, that however good the peace training, some modifications at least will be necessary in time of war; we must bear in mind that it is better to have few than many modifications to make. And as regards the moral factor officers should make it a point of honour to get to know the characteristics of their men, and to imbue them with the spirit that whatever they go in for, they should go in to win.

FAUGH A BALLAGH.

SOULT'S RETREAT FROM THE BAZTAN VALLEY, AUGUST 1813.

BY LIEUT.-COLONEL A. A. E. CAMPBELL.

Perhaps the most dramatic episode of the Peninsula War, as narrated in Napier's wonderful history, is the one when, at the close of the nine days' fighting on the mountain crests and in the deep valleys of the Pyrenees from the 25th July to the 2nd August 1813, Wellington is described as having been within an ace of capturing a marshal of France with his whole army.

"Wellington now occupied the hills through which the road leads from Elizondo to San Estevan, and was full of hope to strike a terrible blow; for Soult, after passing Dona Maria, had halted at San Estevan, although by his scouts he knew the convoy had been taken at Elizondo. He was in a deep narrow valley,—three British and one Spanish division were behind the mountains overlooking the town,—the seventh division was at Dona Maria,—the light division and Graham's Spaniards were marching to block the Vera and Echallar exits from the valley,—Byng was at Maya,—Hill was moving by Almundoz. A few hours gained and the French must surrender or disperse. Wellington gave strict orders to prevent the lighting of fires, the straggling of soldiers, or any other indication of the presence of troops; and he placed himself amongst some rocks at a commanding point, whence he could observe every movement of the enemy. Soult seemed tranquil and four of his gens-d'armes were seen to ride up the valley in a careless manner. Some of the staff proposed to cut them off; the English general anxious to hide his own presence forbade this, but the next moment three marauding English soldiers entered the valley and were instantly carried off by the gens-d'armes; half an hour afterwards the French drums beat to arms and their columns began to move out of San Estevan towards Sumbilla. Thus the disobedience of three plundering knaves, unworthy of the name of soldiers, deprived one consummate commander of the most splendid success, and saved another from the most terrible disaster."—(Napier's Peninsula War, Book XXI, chap. 5.) The authority for the story is given marginally as "Notes by the Duke of Wellington, MSS."

There is undoubtedly want of clearness in some details of Napier's account of this phase of the war; for instance, the hour at which the above episode took place or could have taken place; the length of Byng's march from Ostiz to Maya with a skirmish thrown in; how far Hill really was from Almundoz or Dalhousie from Sant Estevan; why Hill ever broke off from the pursuit of Soult's main army, and so on. These and other reasons led the writer to look a little more closely into the questions of time and space in connection

with the movements of the troops after the second battle of Sorauren. There were not many authorities available to consult, but these included Wellington's Supplementary Despatches, the French historians Lapène and Clerc, and a good modern map. The conclusion he came to was that whatever the Duke's MS. notes consisted of, either they disagreed in important particulars with his own letters and despatches written on the spot and at the time of the events or else they furnished very meagre memoranda, from which Napier enlarged boldly for the sake of effect at the expense of accuracy. The two Frenchmen follow the English historian very closely, with copious quotations. They would naturally perhaps make as little as possible of Soult's disaster, but Clerc is so prejudiced against the marshal, that he might perhaps have been expected to quote Napier on this occasion. Neither however make anything of this narrow escape of his from capture.

The object of consulting a modern map was chiefly in order to calculate distances to fix the sites of towns, villages, and mountain passes with greater exactness than probably distinguishes the old steel engraved sketch maps familiar to the student of Napier. A comparison of one with the other is not a little baulking, for they differ in many essentials, and one can but conclude that the modern survey is the more to be depended upon. A century ago of course even the main roads, which now are fit for motors and every kind of traffic, were scarcely more than tracks, and no doubt they have been re-aligned again and again. Distances therefore can only be given approximately, especially when the twists and turns of a mountain road have to be kept in mind. The distances shown below err however not on the side of over-measurement, and are measured without an attempt at allowance for zig-zags. It is most difficult to fix, with the materials available to the writer, the pass called by Napier, and mentioned in the despatches, as the Dona Maria Pass. It apparently took its name from a village a mile or so south of Sant Estevan at the foot of the northern slope of the mountains, but as the roads now run, the position of the village helps not at all in identifying the pass.

There appear to be four passes immediately west of the great Puerto de Velate, *viz* :—

- | | | |
|--------------------------|---|--------------------------------|
| (1) Puerto de la Sangre, | } | leading from Lanz and Arraiz. |
| (2) Puerto de Arraiz, | | |
| (3) Puerto de Loyondi, | | |
| (4) Puerto d'Eradi, | | direct from Lizaso and Beunza. |

The first two of these passes lie only about one mile and two miles respectively west of the Velate and are too close to the main route to have been the scene of Hill's combat on the 31st July. The tracks over these two passes however are the only two of the four, which, uniting again on the northern side of the ridge, lead nowadays through the village of Dona Maria to Sant Estevan.

The road from Lanz and Arraiz, which sends branches over the Sangre and Arraiz passes, ascends eventually to the Puerto de

Loyondi, five miles west of the Velate, crosses the ridge, and runs down to Sant Estevan, but does not touch Dona Maria. This route connects closely with Lanz and Arraiz, and not with Lizaso and Beunza except circuitously. It is therefore not likely to be the path by which d'Erlon retreated, though it may very probably have been that by which Clausel drew off from Lanzon the night of the 30th-31st July.

The fourth pass, the Eradi, is about ten miles west of the Velate. It is on the direct route from Lizaso and Beunza to Sant Estevan, and its position corresponds with that of the pass shown as the scene of the combat in the engraved sketch map of Napier's history. On the other hand the road does not go near Dona Maria, nor can this pass be identified with the modern Puerto de Arraiz which is Napier's alternative name for the Dona Maria, and the name given to it in the sketch map.

Before leaving the subject of the passes, it is worth mentioning that from the Puerto de la Sangre a path leads to Almandoz, which is conceivably that taken by Hill on his way from Lizaso to rejoin Wellington on the 31st July-1st August.

We have now to consider the distances between certain points mentioned in the narrative, always bearing in mind that the zig-zags on the mountain roads will add considerably to the distances shown here--

1.—*From Sorauren to the Puerto de Maya*—the route taken by Wellington and the 4th division as far as Elizondo, and by Byng's brigade—

	INTERMEDIATE.	TOTAL.
Sorauren to Ostiz	... 4½ miles	4½ miles.
Olague	... 4 "	8½
Lanz	... 3 "	11½
Puerto de Velate	... 3 "	14½
Almandoz	... 4 "	18½
Irrurita	... 4½ "	23
Elizondo	... 3 "	26
Maya	... 4 "	30
Puerto de Maya	... 4 "	34

2.—*From Ostiz to Puerto d'Eradi*—the route taken by the 7th division—

Ostiz to Lizaso	miles	5	miles.
Pto d'Eradi		13	
Sant Estevan		18	

3.—*From Eguares to Puerto d'Eradi*—the route followed by Hill in pursuit of d'Erlon and Soult—

Eguares to Lizaso	... 5 miles	... 5 miles.
Pto d'Eradi	... 8 "	... 13 "

4.—*From Lanz via Arraiz and Pto d'Eradi to Sant Estevan.*

—the route possibly taken by Clausel to join Soult—

Lanz to Pto d'Eradi via Arraiz	10 miles	... 10 miles.
Sant Estevan	... 5 "	... 15 "

5.—*From Lanz viâ Pto de Arraiz to Sant Estevan*—the alternative route possibly taken by Clausel to join Soult—10 miles.

6.—*From Lanz viâ Pto de Loyondi to Sant Estevan*—another alternative—12 miles.

7.—*From Lizaso to Almundoz by the Pto de Arraiz or de la Sangre*—the route probably taken by Hill to join Wellington—13—15 miles.

8.—*From Elizondo to Sant Estevan*—10 miles.

Lastly we have to consider the positions of the opposing forces at nightfall of the 30th July:—

Allies.

Wellington with 4th division and Byng	Ostiz.
6th division ...	Ostiz.
3rd division ..	Hills E. of the Lanz Valley near Ostiz.
7th division	Is W. of Ostiz.
Hill with 2nd division, Silveira, and Campbell	... <i>Equerus.</i>
De la Bisbal	... <i>Marclain.</i>
Light division	... <i>Lecumberri.</i>

French.

Clausel with two divisions intact and remnants of Conroux's division of his own corps; La Martinière's division intact and remnant of Maucune's division of Reille's corps.—at Olagne and Lanz, covering the Lanz and Lizaso roads.
Foy's division of Reille's corps—in retreat towards the Alduides and the French frontier.
Soult with d'Erlon's three divisions—Lizaso.

Wellington's advance on Clausel's heels up the Lanz Valley on the 30th had been checked partially by the news that Hill had not been entirely successful at Beunza that day. The consequence of the French success on their right wing had been to open up for d'Erlon and Soult both the great Pamplona-Tortosa-San Sebastian road and the Lizaso-Sant Estevan-Sumbilla route, either of which they would have been quite free to take but for Clausel's defeat at Sorau-ren. Wellington however seems not to have fully realised how matters had fared with Hill nor how completely Soult was master of the situation on that side. He probably reckoned that any project on the part of Soult to advance by Irurzur and Tortosa had been wrecked by Clausel's defeat. He had always believed d'Erlon to have had two divisions, whereas he had three; he knew that two divisions under Clausel had been badly mauled that day and that a third was in full flight, but he understood that one more, Maucune's, had also retired into France and was unaware that it was still in the field. He counted therefore upon five or at the most six French divisions, and he based his plans on the belief that Soult would retreat into France through the Baztan. Neither does he seem to have questioned by what route the marshal would retire. Soult had been informed by d'Erlon on the 29th July of a report that his operations had had the effect of causing Graham to fall back from the Bidassoa, possibly

of relaxing his grasp on San Sebastian, and that Villatte had crossed that river, thus opening the Sumbilla-Yanzi defile. It was possibly this false report which prompted Soult to take the route he chose, especially as his artillery was to meet him with Villatte. Wellington however had no reason to suppose that Graham had budged, and knowing that the exit from the Bidassoa Valley was closed to the French, naturally expected Soult's main line of retreat would be by the Velate Pass to Maya and Urdax. Clausel's attitude in covering this road and Lanz-Lizaso road must have confirmed the opinion.

Orders for the 31st July were drafted on the night of the 30th accordingly :—

"The 6th division and the 13th Light Dragoons were to march by Engui to join the 3rd division, which was directed upon Linzoain and Roncesvalles."

"The 4th division was to descend into the valley of Lanz"—Morillo's Spanish division accompanied this column.

"General Hill supported by the Spaniards at Marcalain was to press Soult closely, always turning his right, but directing his own march upon Lanz, from whence he was to send Campbell's brigade to the Altuides" (its old position).

"The 7th division.....was to suffer Hill to cross its front and then march for the pass of Dona Maria."

During the night, Soult having decided to retreat by the Dona Maria (Eredi) Pass through Sant Estevan and the Bidassoa Valley, called Clausel in towards himself. Olague is only four miles from Ostiz, and Lanz is only seven ; nevertheless Clausel drew off the whole of his large force without in any way alarming the allied troops, and Wellington started in the morning of the 31st by the route which he believed Soult must take without the smallest idea that the road was clear. Byng's brigade led the way, passing through Lang before 7 A.M.—(Q. M. G. to Graham, dated Lizaso, 31st July, 11 A.M.—*Wellington's Suppl. Despatches.*)

The supplementary despatches shed light on the events which now quickly followed. We find under "Detail of arrangements for the troops under Hill," signed by Sir George Murray and dated Lizaso, 31st July, 11 A.M., orders directing Hill to march by the short cut from Lizaso to Almandoz by which he is intended to join Wellington. This "detail of arrangements," although dated the 31st from Lizaso, was evidently drawn up, like the other orders for the 31st, on the night of the 30th—(see Lord Wellington's letter to Sir G. Murray quoted below). We may suppose that when Wellington had started with Byng's brigade, followed by the 4th division, his quartermaster-general went off to Hill to hand him these orders. To this despatch is appended a postscript, initialled by the Q. M. G. but neither dated nor timed, as follows :—"It is to be understood that the acting upon this instruction is only momentarily suspended by the arrangements made this morning for answering the column of the enemy now retiring by the Dona Maria road." The postscript obviously refers to a direct move of Hill's after Soult and to his

support by the 7th division. It is also plain that the chief of the staff had not realised yet that it was not a mere column of the enemy but the whole French army which was on the Dona Maria road.

Sir George Murray had arrived at Lizaso to find Hill in pursuit of Soult. He therefore added this postscript and sent the orders after him before writing several more despatches dated at the same place and hour, among others one to Lord Wellington and one to Graham.

Early on the 31st Hill became aware of D'Erlon's retreat, and following he overtook the French about 10 A.M. and engaged them with the 2nd and 7th divisions in a combat on the Pass. The combat, which was a rear-guard action, was broken off by a fog. Hill then left the 7th division on the Pass according to the instruction he had just received, and falling back to Lizaso he followed "the short but rugged path" which led between the Dona Maria and Velate passes to Almandoz. The distance from the Pass back to Lizaso (or nearly) and thence to Almandoz cannot have been less than 25 miles at least, and many hours had to pass before Hill could reach Wellington.

Let us now turn to Wellington. At 3 P.M. on the 31st July he wrote the following despatch to his Q. M. G. from Irrurita (at least 23 miles from Ostiz):—"I have just received yours of 11 A.M." (probably a report, dated from Lizaso of Hill's move). "Things cannot be better than as settled last night, with the alteration of the direction of Sir Rowland Hill's corps. Will he be strong enough without Campbell? Let Morillo attend him and the Conde de la Bispal if necessary. Nothing has marched on his road excepting from 500 to 1,000 infantry, with a convoy of biscuit now at Elizondo, which I have sent a detachment there to take. I have Byng's brigade up, and the 4th division following. I shall make the troops dine and see what is to be done in the evening. I have sent a patrol towards Sant Estevan. I have written to order the light division at Zubieto to act on the enemy's rear at Sant Estevan if possible; if not at Sumbilla."

This is a most important letter, for it shows us that while the Q. M. G. was not aware when he wrote to his chief that the whole French army was on the Dona Marin road, Wellington, well forward on the Velate road, had established this fact, and was on the whole content with the arrangements, being only anxious whether Hill was "strong enough." He would hardly have expected Hill to break off as he did, misled by a fog into believing he had only "a column of the enemy" after all to deal with. On the night of the 30th the Q. M. G. had sent a despatch to the light division to move towards Zubieto,—a message which could scarcely have reached Alten until late on the 31st and is probably the one which Napier states to have been received on the night of that date. Wellington however expects them to be at or near Zubieto, only 5 miles or so from Sant Estevan and 8 from Sumbilla by road or 5 over the hills, rough going, and the whole situation appears promising.

Hill and Dalhousie are on the track of Soult; Alten, Longa and Graham will stop one exit; he himself with Byng and the 4th division will stop the other. The letter also places Byng's brigade and the 4th division exactly for us.

We now come to a letter from Lord Wellington to O'Donnell, the Conde de la Bisbal, dated from Irrurita, 1st August, 6 A.M.:— “As far as I can judge the enemy have six divisions between Dona Maria and Sant Estevan. They were still quiet at twelve last night..... I have here the 4th division and General Byng's brigade. The latter took a convoy yesterday evening in Elizondo I have sent the 4th division upon Sant Estevan with the intention of aiding Dalhousie's advance and to endeavour to cut some off. Byng's brigade shall wait here till a later hour in the day, when I shall know better how things are situated on all sides, how far Sir Rowland has advanced, etc., etc. I am only afraid Dalhousie will be too weak in the enemy's front. I sent in triplicate to the light division at Zubieto yesterday to desire that General Alten would move towards Sant Estevan and at all events get hold of Sumbilla, if he could. I have heard nothing of him. I likewise sent to Longa to apprise him of the enemy's retreat by Sant Estevan.”

From this we learn that nothing particular had occurred up to the evening of the 31st. The situation is not so assured as it had seemed the evening before. Nothing has been heard of the light division. Yesterday Wellington was anxious lest Hill should not be strong enough with Dalhousie, to-day he knows that Dalhousie stands alone, that Hill has taken a circuitous march and may be too late when the rapidly approaching crisis arrives. The 4th division has been started off that morning to get into touch with Dalhousie, and to “endeavour to cut some off.” It is a very different picture to that painted by Napier.

Irrurita, whence Wellington dated the letter just quoted, is 6—7 miles from Sant Estevan “as the crow flies” over hilly country ; by road *via* Elizondo it is quite 13 miles. When he wrote to de la Bisbal he proposed staying there “till a later hour in the day.” Hardly had he laid down his pen than news must have reached him from Morillo or from the 4th division which sent him galloping to Sant Estevan. A few enquiries followed, and at “quarter past 9 A.M.” he wrote the following to his Q. M. G.:—“The enemy have fled from hence by the road to Sumbilla ; 30,000 men have passed through this town since yesterday at 12 o'clock” (*i.e.*, midday of the 31st). “The 4th division are following on upon Sumbilla and they shall be pushed on, if possible, to Lesaca..... The 7th division are ordered to follow the 4th. I will order the light division to move upon Yanzi and Lessaca from Zubieto. Upon seeing this order Major-General Byng must move his brigade from Irrurita by Elizondo, and if possible get possession of the Puerto de Maya, throwing his piquets into Urdax. Hill will support Byng by occupying Elizondo, and if possible Ascain (*sic*) with those troops of the column

under him which will first come up. If Sir Rowland Hill's troops should not have made a long march this morning, they should occupy the Puerto de Maya this day, and in that case Byng should this evening take possession of the position of Ainhone, to be supported in the morning by the whole of Hill's corps, Morillo to halt this day at Legasa. I have no knowledge of what is passing on the right, so as to give any orders about the 3rd and 6th divisions. But the 6th at least ought to be so placed this day as to be able to support the right of the troops taking the position of Ainhone in the morning I have not heard of Dalhousie yet."

Thus the French, reported "quiet" up to midnight of the 31st-1st, had been, quietly indeed, filing away through the town since midday of the 31st. Six infantry divisions and the remnants of two more, as well as cavalry, baggage, convoy, and some wounded had slipped away under the very noses of the British generals during the night of the 30th-31st and had made their way by rugged mountain roads for a good 36 hours, and not a soul realised what they were doing until the British commander-in-chief dashed into Sant Estevan about 9 A.M. on the 1st August to find it clear of the enemy. The only troops at hand, the 4th division, are ordered to follow up. Messages are sent to the 7th division of whose whereabouts Wellington knew nothing, to follow, and to the light division of which he knew little more, to move upon Yanzi. Byng who is still at Irrurita is now to post himself on the Maya Pass. Hill's men, who are slowly, painfully toiling on to the scene, are to support Byng.

It seems improbable that Soult halted his army for any length of time at Sant Estevan or anywhere else from the time when he drew off d'Erlon and Clausel from Lizaso and Lanz until they were clear of the Yanzi defile. D'Erlon covered Clausel on the 31st July and faced Hill on the Dona Maria ; Clausel took his turn as rear-guard on 1st August and kept the 4th division at bay, while the rest of the French army filed up the dangerous narrow defile towards Echallar. Six or seven divisions must have covered a lengthy piece of road, and, as Wellington after personal enquiry at Sant Estevan wrote, "30,000 men passed through this town" between 12 noon on the 31st July and 8 or 9 A.M. on the 1st August. There could have been few quiet halts.

The rear-guard of Clausel's divisions faced the British and Spaniards outside Sant Estevan, when the latter's skirmishers first opened fire on the retreating column on the morning of the 1st. It was not till evening of that day that the light division put in an appearance at Yanzi. D'Erlon had easily brushed aside Barcenas' caçadores when they tried to head him off and there was no one else to disturb the passage for many hours. When the light division did appear, not only must they have found the bridge and Echallar road held and covered, but it was only the harried rearmost of the column whom they found more or less at their mercy. Though Soult must have lost not only convoy and baggage, but pretty heavily in men,

he was not so badly mauled as not to be able to rally at Echallar and be ready to fight again on the 2nd August.

"A lamentable fatuity," says Napier, "prevailed in many quarters," and we need not wonder if "Lord Wellington was discontented with the result." His army was not well served by its intelligence. Hill, Alten, Dalhousie, and Barcenas all disappointed him in one way or another. Barcenas and Longa might perhaps have done better, but did the message reach them in time? Was it altogether Hill's fault, if he did not realise that he had the whole of Soult's force between him and Sant Estevan, when he engaged d'Erlon on the Dona Maria? Alten is blamed by the historian for not having marched direct from Lecumberri to Yanzi instead of following Wellington's orders and making for Sumbilla, but it is difficult to understand how he should have known the state of affairs better or sooner than his chief and guessed that he would be too late. From Sumbilla on he could not possibly, working parallel with the French up the side of the valley, where there was no road except over the Santa Cruz mountain, have forestalled them at Yanzi.

It may seem presumptuous to traverse such an authority as Napier, but it is impossible to follow his account of this affair as regards time and space, and the dates, etc., given in Wellington's own despatches written on the spot do not agree with the narrative.

Besides, a word of vindication is due to those three nameless "plundering knaves" of British soldiers, held up to perpetual obloquy.

THE CAMPAIGN OF BULL RUN, 1861.

By LIEUT.-COLONEL W. D. BIRD, D.S.O.

Though fundamental differences in regard to vital interests, in that they induce a state of tension and irritability, are as a rule the real cause of wars, hostilities are most often brought on by some relatively unimportant incident which serves as the match to kindle the flame. In the case of the American Civil War this procedure was however reversed, for out of a minor difference arose one of supreme importance to the fate of the nation.

The primary cause of the Federal-Confederate war was a controversy as to the emancipation of the negro slaves employed to cultivate the estates of the planters of the Southern States of the Union.

Slavery as practised fifty years ago in North America was undoubtedly a great social evil, though probably rather in its demoralising influence on the employers of slave labour than in its effects on the slaves themselves, for servitude in some form is the fate of the human race.

Since however civilisation requires its followers to do all in their power to redress social evils of this nature, nothing can from a moral point of view be urged against the agitation raised in the New England States of the Union and in Europe for the emancipation of the slaves.

Perhaps it is also true that no great reforms would ever be accomplished but for the pressure brought to bear by the radicals of the movement, who through the mere vociferousness of their cries compel some concessions from the more moderate sections of the community.

But radical reforms can rarely be concluded without serious inconvenience or even harm to a large section of the nation, so that it is not surprising to learn that the sum computed as necessary to compensate for the abolition of slavery amounted to no less than four hundred millions. It is even said to have been doubtful whether this large figure would have recouped the Southerners for the losses consequent on so sudden and great a displacement of labour as would have been caused by emancipation.

There was however never any question of raising this sum, the leaders of the anti-slavery propaganda apparently contending that as slavery was wrong in principle and should not have been initiated, those who owed their prosperity to its existence must be content to suffer loss from its abolition.

Though the slave-owners numbered only about 350,000 out of a total population of some 9,000,000 in the States involved, the sentiment of the bulk of the Southerners was unquestionably against

outside interference in what was regarded as a purely domestic matter. The demand for abolition was therefore resisted in speech and press, the campaign of words grew daily in bitterness, and as is usual in such cases invective and misrepresentation were freely used in the heat of the conflict.

The public taste, soon satiated with such dict, began, as fiercer passions were aroused, to demand stronger meat, so that in the ordinary course of gradation there succeeded to invective, threats and menaces.

Finally towards the end of 1860 the attitude of the agitators in the Northern States became so menacing that in December South Carolina took the extreme step of severing her connection with the United States.

This example was followed in January, 1861 by Florida, Georgia, Alabama, Mississippi, and Louisiana, and on 1st February by Texas.

On 8th February these States formed a confederation, with a constitution similar to that of the United States, choosing a certain Jefferson Davis to be President.

From this moment the anti-slavery agitation fell into abeyance, being over shadowed by the more vital question whether the Union as previously existing should be forcibly maintained, or should be allowed to dissolve. The people of the North who had supported the demand for the abolition of slavery denied the right of secession, perhaps from an instinctive feeling that to keep the Union was necessary in the interests of national development, the various States being still insufficiently strong at once to resist foreign pressure and to exploit their own resources.

For the moment however no action was taken to give forcible expression to this attitude.

In the first place the North was unready for war, in the second the country was without a leader.

In the United States the President is elected in the autumn, but does not assume his duties until the following spring. The outgoing President is therefore naturally unwilling to do or say anything that may tie the hands of his successor.

Though the democrats were still the predominant party in the Congress, which is elected at a different period to the President, it so happened that in the autumn of 1860 there had been a presidential election resulting in the return of Lincoln, a republican, a strong abolitionist, and a man of great resolution.

Buchanan, the outgoing President, a democrat, and one of the most moderate public man of his time, was therefore in a difficult position. Whilst men were waiting to see what attitude would be adopted by Lincoln on his accession to office, Buchanan went no further than to voice the denial of the right of secession in his message to Congress in December 1860, though he at the same time publicly declared that in his opinion the use of force to maintain the Union would be inexpedient and illegal.

Thus for three months after the secession of the principal Southern States no warlike steps were taken, the South awaiting on the movements of the North, and the North being unready to enforce its will.

Lincoln on taking office on 4th March at once promulgated a definite policy, declaring in the inaugural address his determination to maintain the Union, and to hold, occupy, and possess the property and places in the Southern States belonging to the Government of the United States, that is, all forts and military posts, besides collecting all Union imposts and taxes.

This declaration amounted to a threat of war, for the Southern States in seceding had maintained that their right to do so was based on the fact that the Union was only a form of alliance, and that forts and arsenals built with Union funds in Southern territory necessarily belonged to the States in which they stood and not to the central government.

Moreover, the seceding States either prior to or about the time of their withdrawal from the Union had quietly taken possession of the majority of the forts within their territory. When Lincoln assumed the reins of office, only a few coast fortifications, such as Fort Pickens near Pensacola, Key West and Tortugas, on the Gulf of Mexico, and Sumter on an island near Charleston, were in occupation of small garrisons of Union troops, whose subsistence was assured by the fact that the whole navy remained in the hands of the President and his party.

The Confederates now determined to capture Forts Sumter and Pickens, and taking advantage of hesitation displayed by the Union authorities, (who, when action was essential, wasted time in debating whether Sumter should be reinforced by 20,000 men, the number estimated to be necessary to render it capable of standing a siege) they captured the fort on 14th April, after two days' cannonade.

Prior to this act of war many men in the North if not actually partisans of the secessionists were averse to the use of force to maintain the Union, hoping that some compromise might be reached. But the political effect produced by the capture of Fort Sumter was to bring the whole of the Northern States into agreement with the policy of the President, and Lincoln at once took advantage of this feeling to issue a proclamation calling out 75,000 of the State Militia, for, as he phrased it, "the suppression of the confederate combination and to cause the laws of the United States to be duly executed."

The constitution of the United States is so arranged that whilst all States control their internal affairs, and maintain, or are supposed to maintain, state militia for local defence, the people as a whole contribute money towards such services as a national army and navy.

During the long peace which followed the struggle with Great Britain for independence, the State military organizations had so far fallen into abeyance in the North that they had practically disappeared, the small regular army of the Union being found sufficient

for such purposes as frontier guards to Indian territories, and for police work.

Lincoln was therefore making considerable demands on the State officials who were required not only to produce, equip, and even transport the militiamen to the frontier, but also to supply them with pay, no money for this purpose having been voted by Congress.

In addition to the expected muster of militiamen, the small regular army, which remained practically intact in the service of the Union Government, was available to coerce the secessionists, so far as men could be spared from frontier guard.

At this period the regular army was however both weak in numbers and of low moral. The men were despised by the civil population mainly because instead of being free and independent citizens they were obliged to submit to discipline; it was therefore difficult even to obtain enough recruits to complete the few peace establishments, which had been reduced as much as the exigencies of police work and the maintenance of frontier garrisons would permit.

In December 1860 the army consisted only of some 16,500 officers and men, who were for the most part distributed in the territories west of the Mississippi, there being east of this river merely a few companies of artillery, and one of engineers, whilst even in the neighbourhood of Washington there was but a handful of men.

The events of April 1861 had the effect of clearing up the situation in respect of the sides to be taken by the various States in the impending struggle. Twenty-two States complied with enthusiasm to the President's call to arms, though others, which before had been doubtful, such as Virginia, North Carolina, Arkansas, and Tennessee, at once joined the Confederation, whilst Maryland, Kentucky, and Missouri, were so lukewarm for the Union that they refused to provide men for coercive purposes. There were thus at this period on the side of the Union twenty-two States, possessing a population of some 22,000,000, and against it eleven States with only 9,000,000 inhabitants, of whom more than one-third were slaves and therefore potential enemies—(see sketch 1.)

As a matter of fact, however, the slaves remained throughout the war perfectly subordinate, and supervised only by old men, boys, and women, carried on cultivation necessary to raise the food for subsistence, and the cotton for merchandise, which enabled the South to continue the war.

The slaves were also freely used for construction of fortifications and for kindred military works.

It was not only in population that the North was more powerful, for the Federals possessed far greater capital than did the Confederates, they controlled almost the whole of the manufactures of the country, had greater business capacity, raised more grain and cattle, owned a better railway system, and controlled more rolling-stock.

The people of the South, for the most part occupied in agriculture, with its accompaniments of an outdoor life and knowledge of

such pursuits as hunting, shooting, fishing, etc., were however better suited to military service than were the town-bred citizens of the North. The Southerners moreover fought for their independence, or for the love of fighting, which were perhaps more powerful incentives than the strict sense of duty, the force of public opinion, or the mere attraction of high pay, which, generally speaking, actuated the armies of the Union.

Of the character of the national leaders it may be said that Lincoln was a headstrong determined man, who for this reason, and also because he was without knowledge of military affairs and therefore did not realise the danger of his action, frequently intervened in the conduct of the campaign, specially at the beginning of the war when things were going badly, and before he had learned from experience that such action is usually disastrous.

Jefferson Davis, the head of the Confederate States, had been a soldier and had served with distinction. He therefore on the whole avoided the errors committed by Lincoln, trusting more implicitly to the able men whom he had placed in command of the confederate armies.

Lincoln's first and somewhat uncomplimentary estimate of the resolution of the Southerners, as to the numbers required to maintain the Union by force, was soon under revision, and on 3rd May the President saw fit to demand 42,000 additional volunteers, who were to enlist for a period of three years; he also asked for 22,000 additional men for the regular army, and 18,000 for the navy.

The troops that would thus have been made available would have reached the respectable total of 175,000 men, but it is instructive to note that within three months the number of men estimated as required to end the war had risen to 400,000.

Had the President in the first instance demanded an army 400,000 strong the South might well have been overawed, and war might have been averted. As matters stood the very feebleness of the Northern preparations were an actual encouragement to resistance.

No campaign can be studied with profit until some conception is obtained as to the quality, efficiency, and armament of the combatants; it will therefore be necessary to follow in some detail the steps taken by both sides to raise troops in this sudden emergency. These are in addition not without peculiar interest to us, partly because the past history of Great Britain and its present military system tend to incline to the belief that the nation may not improbably find itself in a similar predicament, partly because the principal actors in the drama were men of British extraction.

The raising of the first Ohio contingent by Messrs. Cox and McLellan is a typical example of the recruiting methods adopted in the North. McLellan, subsequently one of the foremost of the federal generals, was in April 1861 a railway superintendent, having in the rank of major left for a more lucrative calling the slow and unpromising career of arms, after distinguishing himself in the Mexican war, and in the Crimea, where he was a military attaché.

McLellan and Cox had first of all to settle on a plan of action, and after some discussion it was decided that before taking any steps to obtain recruits they must discover what arms and equipment were stored in the arsenal of Columbus, from which the Ohio forces were to be equipped.

The inventory proved to be the reverse of satisfactory, for there were available only a few smooth-bore muskets, rusty and in other respects damaged, three 6-pounder brass field guns which were quite worn out, and a pile of mildewed harness too rotten to be serviceable.

As no arms or equipment were forthcoming, and as no war establishments or mobilization store tables existed as a guide to the formation and equipment of a force, the two at once set to work to compile the necessary tables, together with estimates for the war outfit of 10,000 men. 866

At the same time recruiting was begun, efforts being in the first place made to induce the personnel of the town guards, which existed in most places, to volunteer for service, and so form the nuclei of larger organizations.

In some cases the town guards rose to the occasion, in others they did not, but almost without exception as companies were formed the members were allowed to elect their own officers, who were consequently chosen not for military knowledge, or for fighting capacity, but because they were traders of substance, or because they had taken an active part in local politics, or in beating up recruits.

Battalion commanders and field officers were also elected, but these were usually chosen from men who had had, or said that they had had, military experience.

Few if any regular officers were employed either in command or in the instruction of the smaller organizations, for General Scott, the Union commander-in-chief, who had no belief that an effective weapon of war could be improvised in a few weeks, as a rule refused the services of the younger regular officers to assist in raising troops, preferring to retain them with their own men rather than reduce the efficiency of the regular units by their withdrawal. Such of the senior officers as could be spared were required for the command of brigades and larger units.

It is easy now to say that the commander-in-chief would have been better advised to have used his regular troops as a leaven to leaven the whole mass of the militia and volunteers by posting some regulars to each militia or other formation. The policy actually followed was however not altogether disadvantageous, for though the militia and volunteers lost through the absence of regulars' advice and direction, the presence of regulars might, and probably would, have been prejudicial to the popularity of the army, for the people of the North, holding as they did the characteristic opinion of the Anglo-Saxon race that successful war can be waged with improvised troops, would have been inclined to resent the presence of regulars, whereas the forces that were being raised were in every sense of the word popular.

As soon as companies had been recruited up to a reasonable strength it was arranged by McLellan and Cox that they should move to a camp which had been formed at a place called Dennison, near Cincinnati. Here the companies were grouped into battalions, and military training began in earnest, squad drill without arms being, for lack of weapons, the first exercises, though in addition each unit furnished sentries in order to teach the men sentry duty. Schools were at the same time established for the instruction of the officers.

Camp life at Dennison proved to be rough and full of minor hardship for the rank and file, because the officers had not as yet realised their obligation to care for the comfort and health of their men.

Yet even this state of affairs was not without compensations, for the men quickly learnt to look after themselves, and incidentally, through mere association, began to know and trust their officers.

In the disorder of a hurried preparation for war the units that had been formed at Dennison were however more often than not broken up, and to meet emergencies, real or fancied, men were drafted off, when supposed to be fit for service, in dribs and drabs to the Union frontiers.

In the district round Washington the task of raising men to supplement the slender forces available for the defence of the capital was confided to a Colonel Stone, who early in 1861 was appointed Inspector of Volunteers in the Columbia district, that is in the district round Washington.

At this period there were actually present in the capital only some 300—400 marines, and 50 men of the ordnance department, whilst in the Columbia district there were only four companies of volunteers.

The necessity for supplementing this small force was therefore urgent, but Stone was obliged to proceed warily, for Washington being on the border of the Secession States was full of confederate sympathisers.

He therefore commenced operations by feeling the pulse of public opinion, letters being addressed to prominent men in the neighbourhood, who were informed that it would be agreeable to the Government if each would undertake to raise and organize a company of volunteers for the preservation of order.

This plan succeeded admirably. A few of the letters were unanswered; a few of the personages addressed refused the request, some doing so sarcastically; but the majority agreed to fall in with the wishes of the Government. As a result in six weeks thirty-three companies of infantry and two troops of cavalry had been raised, uniformed, and equipped, and were being trained, though as some had really been organized in the confederate interest it was still necessary to proceed with caution.

Companies suspected of secessionist sympathies were in the end either refused arms, which were not at first available, or, when

suspicion of disloyalty had been confirmed after arms had been issued, were quietly disarmed.

Finally, at the end of May, thanks to the exertions of Colonel Stone, sufficient men had been collected in and round Washington to afford at least moral protection to the capital.

Recruitment had meanwhile also made good progress in the other States of the Union, though the troops that had been thus hurriedly created were not as yet an army in any sense of the word, being mere inorganic collections of men, who for the most part had enlisted only for three months.

During this interval the South had by no means been idle, and though possessing neither navy, nor even a small body of regular troops, was nevertheless in some respects better situated for the rapid organization of a force fit to take the field than were the Federals.

The militia of the Southern States had not been allowed to fall into abeyance to such an extent as had happened in the North, which was doubtless due to the fact that the Southerners, being only a relatively small majority in the midst of a slave population, had felt the need for the maintenance of at any rate the semblance of military organization.

Of the men who were of the military age and fit for service, almost all therefore nominally belonged to the militia or volunteers, but though some had a smattering of drill the majority were quite raw and had no conception of the meaning of discipline.

In addition the Confederates had the advantage of the services of regular officers in organizing and equipping their levies, who on the secession of their native state had resigned their commissions in the army of the United States. On the other hand, the regular officers were too few to be able to undertake the details of training, and no N.-C.O.s. were available for this purpose, those of Southern birth in the regular army having ties which kept them true to the Union.

As in the case of the Northern States the training of the men called out for national defence was carried on locally, so that the men of Virginia, for instance, were mostly collected at a place called Camp Lee near Richmond, though a similar camp was established near Manassas.

To give some idea of the syllabus of training followed at these camps, it may be mentioned that Stonewall Jackson, to whom was confided the instruction of a brigade, found that seven hours' drill per day was not too much to demand from his officers and men. He exacted discipline so far as implicit obedience of orders was concerned, but did not require the refinements of military etiquette and punctilio, such as saluting, which would only have irritated the men and would have caused their relations with their officers to lack cordiality.

Both sides had at first been short of arms, in fact on the Southern side arms were at the beginning of the struggle more scarce than men, and many of the infantry carried shot guns, whilst

some of the cavalry troopers were armed only with rude lances manufactured by village smiths.

As no ordnance factories of any great capacity existed in the States, arms were for the most part purchased in Europe, and in these dealings the better credit of the North was advantageous. The South however managed to get sufficient arms, and since they were obtained from much the same sources as those drawn on by the North it resulted that the respective armament was practically identical.

The infantry weapon was a muzzle-loading rifle, sighted to 1,000 yards, and most effective at 200 yards and under. The artillery consisted mainly of rifled twelve-pounder guns, which were most effective at 2,000 yards and under; smooth-bore twelve-pounders most effective at 1,600 yards and under; and smooth-bore six-pounders most effective at 1,600 yards and under. There were also ten, thirteen, twenty, and thirty pounder rifled guns.

The Confederates however had no rifled ordnance at the time of the battle of Bull Run, and it may incidentally be remarked that the greater part of the infantry only received bayonets and ammunition pouches on the eve of this battle.

The territory occupied by the people whom the Northerners proposed to bend to their will was of vast extent, running north and south for about 800 miles, whilst at its widest it was some 1,700 miles from east to west. In other words, it was about equal in size to Cape Colony and Natal together.

There is no more serious military obstacle than space, especially when, as was the case with the Southern territory, the seat of war is only partially developed, and there is no military task more difficult than the conquest of a spirited people.

In such circumstances the object can only be achieved by expenditure of numbers of men, and after considerable lapse of time.

Attention must now be devoted to the topography of the area in which the campaign of Bull Run was fought. * The district in question lay roughly within fifty miles of the southern bank of the lower course of the Potomac river which in a general way formed the northern boundary of the Confederacy. * This stream is not less than 300 yards wide at Harper's Ferry, at Washington it is a mile across, and below that city it becomes an arm of the sea—(see sketch 2). * At Harper's Ferry the Potomac is joined by the Shenandoah river flowing almost due north from the fertile valley bearing its name, and close to the right bank of the Shenandoah run the Blue Ridge mountains extending up to the Potomac.

Some twenty-five miles south of Washington the Potomac is met by another considerable river, the Occoquan, which in its turn receives on its left bank a winding and shallow stream known as the Bull Run.

The Bull Run, which rises in a chain of mountains of that name, flows in its upper reaches through an undulating and wooded area, but its lower course lies in a densely wooded district. Throughout

its course the bed of the stream is confined by high forest-clad banks, the left, or northern, as a rule commanding the right. Roads or tracks had been cut down the banks to many points where fords existed or bridges had been thrown.

A marshy tributary of the Bull Run, named Young's Branch, after pursuing a winding course amongst the hills, joins the Run about half a mile below Stone Bridge, where a main road, known as the Warrenton Turnpike, crosses the river. At the time of the battle the hills enclosing the valley of Young's Branch had been partly cleared, but were in part still clothed by woods and copses, the southern and higher ridges taking, near Stone Bridge, the form of a plateau falling towards the Branch in gentle slopes, somewhat broken up by water-courses and studded with clumps of trees.

In such portions of the valleys of the Bull Run and Young's Branch as had been cleared the fields were somewhat swampy, unhedged, and but scantily fenced with timber or in some cases with wire, whilst the few lines of trees that had been allowed to stand in place of hedges had been so far thinned as to offer no obstruction to the view.

Several railroads traversed the district.

From Alexandria, opposite Washington, there ran the Orange and Alexandria railroad, crossing the Bull Run at Union Mills, and thence passing through Manassas junction. At Manassas a line branched off through Thoroughfare Gap in the Bull Run mountains, and Manassas Gap in the Blue Ridge, to Strasburg on the Shenandoah river, where connection by road was established with the line leading from Harper's Ferry to Winchester.

From Harper's Ferry Washington could be easily reached by the Baltimore and Ohio railway.

A line also connected Alexandria with Leesburg, a township in the Bull Run mountains lying about halfway between Washington and Winchester.

The roads grouped themselves into two systems, those radiating from Centerville, a place about 25 miles from Washington, and those from Manassas junction ---(see sketch 3).

Of the latter the most important was the Warrenton Turnpike running from Alexandria in a westerly direction over the Stone Bridge, and from this road there branched, about two miles west of Centerville, a track leading northwards to Sudley Springs and Ford on the Bull Run.

The Old Warrenton Turnpike running nearly due south passed the Bull Run at Balls Ford and thence proceeded to Newmarket, whilst two tracks leading from Centerville crossed the Run at Mitchells, Blackburns, and McLeans fords, and then uniting went to Manassas junction.

A road branching from the Centerville-Fairfax station road passed the Bull Run at Union Mills and led to Manassas junction; and above Stone Bridge the Run was crossed by tracks at Poplar Ford and Farms Ford, whilst below the bridge was Lewis' Ford.

Lateral communication along the river bank was provided by two tracks, one running about a mile south of the Run from Union Mills to Stone Bridge, the other leading from Sudley Springs to Manassas junction.

In the area of which the topography has been roughly described the rival forces were about the beginning of July disposed as follows—(see sketch 2). It is a maxim of war that divided responsibility in the command of armies breeds ruin, for few men are so loyal as to be altogether uninfluenced by personal prejudice, vanity, and ambition. The Confederates had however still to learn this lesson, for neither a commander-in-chief nor a director of operations had as yet been appointed.

The confederate armies in the Virginia theatre of war were confided to two generals, Johnston and Beauregard, without recognised superior other than the Southern President, who because he was too much occupied with other matters, or because he had no orders to give, issued definite instructions to neither general, leaving them to confer and co-operate as best they could.

Both generals luckily for the fortunes of the South were able men.

Beauregard, who before the war had held a commission as a major of Engineers, is described as a clever, versatile, and well-read soldier, whose mind was fertile of military projects though he perhaps lacked the force of character required to carry them through.

J. E. Johnston, on the other hand, was methodical rather than brilliant, but was a soldier well versed in the principles of war, patient and self-reliant but perhaps inclined to formalism, and lacking that spark of genius which is the essential attribute of a great commander.

Johnston commanded, at Winchester a force of about 11,000 men and 20 guns, including the brigades of Bee, Bartow, Jackson, and Kirby Smith, two unbrigaded battalions, twelve companies of cavalry, and five batteries, his duty being to observe the federal general Patterson, a man of ordinary capacity with no special characteristics, who lay near Charlestown with a slightly superior force.

It does not seem that at this period the Confederates contemplated active operations in the Shenandoah valley, so the rôle of Johnston's troops was probably merely to secure this rich district for the supply of the larger force lying near Manassas junction.

Beauregard here commanded some 25,000 infantry, 800 gunners, and 33 guns, organized into five brigades, commanded respectively by Brigadier-Generals Bonham, Ewell, D. R. Jones, Longstreet, Cocke, and Early, three unallotted battalions of infantry, one of which was known as the Hampton Legion after its founder, three or four battalions of cavalry, and six batteries.

There was also a detachment of 2,500 men and six guns at Acquia creek, thirty miles south-east of Manassas junction, watching the roads leading from the Potomac, via Fredericksburg, towards Richmond.

Of the main force the bulk was near Manassas, but the brigades of Bonham, Ewell, and Early had been pushed across the Bull Run towards Fairfax Court-house.

Johnston and Beauregard were in telegraphic communication with one another and with Richmond, whilst the Manassas Gap railway, on which however only a small rolling-stock was available, could be used to transport rapidly troops to or from either flank of the confederate line.

On the federal side sanction for the organization into brigades and divisions of the considerable forces of three months' volunteers, which had now been massed for the immediate protection of Washington, was only obtained early in July on the representations of General McDowell, who had been appointed to command the troops at Washington, and is described as a well educated man, of average ability and determined character.

McDowell, curiously enough, had been a contemporary at West Point of Beauregard.

Of the 55,000 men available for service some 47,000 were infantry, and of these 17,000 were so raw as to be fit only for garrison duty in Washington. The remaining 30,000, amongst whom were eight companies of regular infantry and a battalion of marines, were grouped into five divisions as under :—

The 1st commanded by General Tyler, comprising the brigades of Keyes, Schenk, W. T. Sherman, and Richardson.

The 2nd under General Hunter, and comprising the brigades of A. Porter and Burnside.

The 3rd under General Heintzelmann, with brigades under Franklin, Willcox and Howard.

The 4th under General Runyon, of nine battalions unbrigaded.

The 5th under General Miles, with brigades under Blenker and Davies.

The 49 guns available for service (28 of which were rifled) were organized into ten batteries—nine being manned by regulars—of four or six guns apiece, which were allotted as army troops, the residue of the guns being attached in pairs to certain infantry battalions.

The seven companies of cavalry were also allotted as army troops.

On both sides there were not wanting those who were anxious to carry the war into the enemy's territory, Beauregard, for example, being desirous of following the example of Frederick the Great, whilst the federal press, prone like most amateurs in military affairs, to count heads rather than to consider efficiency, and determined to use the three months' men, whose period of engagement was drawing to a close, had quite resolved, as the editors phrased it, to end the war with one blow.

Before proceeding to detail the courses actually followed, it will be interesting to consider briefly what plans would have been best suited to the circumstances and policy of the belligerents, assuming that the commencement of active operations had been decided with the troops actually available.

The principles of strategy are few and simple, but their translation is, owing to political, financial, and other causes, a matter of the greatest difficulty. They are that every available man should be employed, for in war it is, within the limits set by questions of maintenance, not possible to be too strong; that no blow should be given not calculated to produce decisive results, force being concentrated where decisive blows are to be struck; that operations should be carried out with rapidity, measures being taken to deceive and mislead the enemy; and that pressure on the enemy should not be relaxed until his strength is broken and he is forced to sue for peace.

Bearing these principles in mind it would seem that had he been a free agent, General Scott, the federal commander-in-chief, should before undertaking active operations have arranged for the concentration of all available troops in the locality where the blow was to be struck.

The choice of locality was therefore the first consideration.

An advance into the Shenandoah valley would not have been productive of decisive results, for it would not, if successful, have ended the war, and the transference of the army to this locality would have left Washington, the federal capital, open to a counter-stroke. This project may therefore be ruled out.

So far as the operations under consideration were concerned, and leaving out of consideration the possibility of shipping the army to the neighbourhood of Richmond, the only other alternative would have been to attack the confederate forces known to be in the neighbourhood of Manassas, and as their decisive defeat might well have been followed by the submission of the Confederacy, this plan would have fulfilled one of the principles of strategy.

Against the army at Manassas General Scott should therefore have concentrated every available man.

Assuming that only the troops at Washington and those under Patterson were available, this could have been accomplished by moving the force under Patterson from Charlestown round to Washington, an undertaking presenting no physical difficulties with the Baltimore and Ohio railway available for transportation, whilst the temporary abandonment of the Shenandoah valley would have had no harmful results. Even if to have left the valley would have been politically undesirable, the advantages to be gained from a victory at Manassas would have far outweighed the drawbacks of moving the federal troops from Charlestown.

But an important principle is that the enemy must be deceived as to what is intended, and the open transference of the whole of Patterson's force to Washington would not have fulfilled this condition, for such procedure would have warned the Confederates of what was intended.

Whilst then the bulk of Patterson's troops were sent to Washington, the residue should, by activity, have endeavoured to distract the enemy's attention from the movement, making him apprehensive

of an advance into the Shenandoah valley, rumours as to which should have been industriously circulated.

It may of course be argued that such activity would have aroused the suspicions of the Confederates as to the inception of an offensive elsewhere, but when there is more than one possible alternative there must always be doubt as to which course the enemy is pursuing; and to have discovered with certainty what was taking place, the Confederates, unless they themselves assumed the initiative in a direction likely to bring on decisive action, must have advanced in force on Harper's Ferry, and therefore away from Washington, which would have been to the advantage of the Federals.

Having decided then that every available man should have been concentrated at Washington, steps being at the same time taken to deceive the enemy as to the direction of the impending blow, there would have remained the question in which direction the attack should have been made.

Decisive victory without the necessity for pursuit is gained when the enemy is surrounded, but to achieve complete envelopment demands considerable preponderance of force.

The Federals estimated the strength of the hostile force at Manassas at 35,000 men. In and near Washington there were available for active operations some 38,000 fairly efficient troops, and some 17,000 who were not fit to take the field. Patterson could bring perhaps 12,000, though his troops were known to be of poor quality. The total available would then have been about 50,000 men against 35,000, hardly sufficient preponderance, having regard to the quality of the forces, to justify attempt at complete envelopment.

But a great victory, which may be turned into decisive success by effective pursuit, is gained when the enemy is driven off his line of communication, and this operation may be facilitated by the shape of the frontier, or by the direction taken by the rivers and mountains of the theatre of war. The confederate line of communication ran apparently along the Orange and Alexandria railway, and the Federals, who possessed command of the sea, basing themselves on the Potomac, south of Alexandria, could have struck the enemy's line of communication at an angle, that is, from an advantageous direction, by a movement due west from this point, and would at the same time have been effectively covering their capital. At first sight, then, it would seem that the Federals might with profit have undertaken some such operation.

If on closer enquiry such project proved impracticable there would have remained the alternatives of a turning movement round one or other flank of the hostile position, the eastern flank, where success would tend to drive the enemy away from his capital and resources, being most advantageous; or a frontal attack combined with the envelopment of one flank, the eastern for choice, might have been undertaken.

The Confederates were for political reasons on the defensive, and were consequently obliged to leave the initiative to the enemy.

In these circumstances they could, whilst taking all possible measures to obtain early and accurate news of the hostile projects and movements, so dispose their armies as to be in the best position to adopt the offensive when the enemy began his advance ; or could place them in such position that he could not attack except at a disadvantage to himself, and if he attempted to avoid battle and to turn their position, would lay himself open to an effective counter-attack.

The guiding principles of their strategy should not however have differed in any way from those that have been stated already. It would therefore seem that they should have concentrated their forces, and that the detachment of Jackson to Strasburg requires explanation, for before making a detachment a general should consider whether the influence likely to be produced by its action will counterbalance the disadvantages inherent in its absence from the main theatre of operations.

As has been mentioned, it is probable that political reasons, as well as the desirability of keeping the valley available as an area from which to draw supplies for the troops at Manassas, dictated the assignment of so large a force to Strasburg. Strictly speaking, however, neither reason affords sufficient justification for the measure, nor did the presence of the railway from Strasburg greatly mitigate the evils of the detachment, for the Confederates had no reasonable grounds for supposing that Johnston would be able to transfer his force from the valley to Manassas with sufficient rapidity to insure its presence in a battle should the Federals advance from Washington.

It would seem then that a much smaller detachment should have been sent into the valley. If the Federals chose to move a force far into its confines, these troops could have taken no part in operations near Washington, which would have been advantageous to the Southerners, for the vicinity of Washington, and not the valley, was the decisive point.

The position at Manassas was perhaps on the whole well adapted to the requirements of the Confederates, for in the Bull Run, difficult of approach, was a line well suited for defensive action, though no doubt disadvantageous for counter-attack. Moreover should the Federals advance along the Warrenton Turnpike, and the Confederates decide on a counter-offensive, they might, if they could clear the river with sufficient rapidity, by moving direct on Fairfax Court-house, strike the Federals more or less in flank.

The plans actually adopted by both sides will now be explained. As has been mentioned there were at the beginning of July near Washington a large number of three months' volunteers who had been enlisted mainly during the previous April and May. These troops had been placed under the immediate command of General McDowell, though General Scott, the commander-in-chief, directed the whole of the operations under the President. Scott, more than doubtful as to the military value of the three months' men, was averse to the adoption of an aggressive plan of campaign until a

body of troops enlisted for the whole period of the war, and properly trained, had been collected, and McDowell agreed with his chief in this matter.

As so often happens, military opinion was overruled, and in deference to the clamour of the press and the public, who were determined to begin hostilities at once, Scott was ordered to call upon McDowell to submit a plan of operations against the confederate force at Manassas.

Against this policy both Scott and McDowell protested in vain, pointing out how recently the troops had been brigaded, that they had never been exercised together, that none of the leaders had had any experience of moving and handling so large a force, that the supply arrangements were incomplete, the wagons insufficient, the drivers incompetent and insubordinate, and finally that the men had received no instruction in shooting, many having never even fired their rifles in their lives.

These arguments produced no impression, for the public, vaguely conscious that American independence had been gained by volunteers against veteran soldiers, favoured an immediate advance. In this attitude they were encouraged by the press writers, who being unable to discriminate between the value of an army and an armed mob, were ignorant of the necessity for cohesion, a quality which was openly disparaged.

McDowell having therefore no alternative but resignation or submission of a plan of action, chose to adopt the latter.

He began his review of the situation with two assumptions—that though Johnston and Beauregard were known to be in telegraphic communication, and though troops could probably be transferred with moderate rapidity from one flank of the confederate front to the other, Patterson would be able to hold fast the confederate troops standing in the Shenandoah .alley—that the army under Beauregard numbered some 35,000 men, for whose defeat it was computed that an army of 30,000, with a reserve of 10,000, would be required.

Supposing that the numbers mentioned above would be available, McDowell proposed, and his plan was approved, a turning movement round the right or eastern flank of the position which the Confederates were believed to have occupied along the Bull Run, with a view of threatening their communications in the area southwest of Manassas junction. But it does not appear that much was known of the topography of the district in which the troops were to operate, or that any reconnaissance had been attempted.

Beauregard had at first strongly urged on the Confederate President the advantages that would accrue from an offensive, with a view to carrying the war into the enemy's country. But President Davis did not, for various reasons, consider that the adoption of an offensive would be desirable, amongst his reasons being the fact that the troops were in no condition to undertake successfully the capture of the fortifications of Washington.

Davis therefore made an alternative suggestion, that in the event of an offensive on the part of the enemy Beauregard should fall back behind the Rappahannock at Fredericksburg, where he would be joined by Johnston.

Against this plan it would appear that both generals protested, for it seems finally to have been agreed that if Beauregard was attacked he should hold his ground, and that Johnston should join him with 5,000—6,000 men.

The fact that active operations were about to be undertaken by the force under McDowell had been so well advertised in the press that the projected advance was a matter of common knowledge, but press notices are not infrequently inserted to mislead, so Beauregard had recourse to the services of spies, who confirmed the reports that an advance was imminent.

On 16th July the eventful movement began, the first division to pass the Potomac being that of Tyler, which crossed the bridge at 2 P.M., the men bearing an unaccustomed load of arms, accoutrements, and three days' rations, but stepping out bravely under the influence of martial music, flying colours, and cheering crowds, and escorted by senators, by fair ladies riding in well appointed carriages, and last but not least by quite an army of reporters.

At 8 A.M. on 17th the remainder of the force followed with the provision wagons, again receiving a popular ovation as a send-off.

Under the influence of these inspiriting conditions the men marched gaily for the first few miles, but as the sun gained power, the rifle, the blanket (the principal article of equipment), and the rations, became unbearable burdens. Soon the men fell out and sat in dozens under every tree and bush, and along the banks of every little stream, deaf to the orders and entreaties of their officers.

By nightfall the main body had hardly covered half the distance to the Bull Run, and McDowell, who somewhat optimistically had intended to attack on 17th or early on 18th, was obliged to modify his plans.

Tyler's division had meanwhile marched cautiously to Centerville, meeting with no opposition beyond a slight skirmish with a patrol at Fairfax Court-house, though in places the road had been obstructed by a few felled trees.

The Union troops halted on 17th as follows:—The 1st division near Centerville, the 2nd division at Fairfax Court-house, the 5th division south of the 2nd, the 3rd division at Fairfax Station—(see sketch 2).

In the evening discipline became so far relaxed amongst the numerous stragglers that plunder and incendiaryism occurred near Fairfax Court-house and near Centerville, with the result that McDowell issued an order that regimental police were to be detailed, and that the offenders were to be lodged in Alexandria gaol.

Meanwhile, on receipt of the news of the impending advance, Beauregard at once telegraphed to Johnston a request for assistance. Johnston replied that he would march a portion of his force through

the Manassas Gap to a point east of the Blue Ridge, where all available rolling-stock was to be collected to meet him and convey his troops to Manassas.

Subsequently Beauregard suggested that Johnston should move his force to the vicinity of Aldie, whence he was to march against the right rear of the federal army as soon as the sounds of battle were audible from the direction of the Bull Run.

This plan depending for success on the chance that Johnston would hear the sound of battle, and that the Federals did not become aware of his position, was thought by Johnston to be too precarious, and was abandoned. It might however possibly have succeeded against McDowell's ill-disciplined troops, had Johnston been able to bring his equally raw force into position in time to intervene in the action that was imminent.

Pending the arrival of the reinforcements from the valley Beauregard disposed his force as follows :—

At Union Mills the brigade of Ewell ; at McLean's Ford the brigade of D. R. Jones, with that of Early in support ; at Blackburn's Ford the brigade of Longstreet ; at Mitchell's Ford, Bonham's brigade, with a detachment of infantry and two guns east of the river ; Cocke's brigade was in the vicinity of Balls Ford, and a detachment of two battalions of infantry, two companies of cavalry, and four guns was under Evans at Stone Bridge and Farm's Ford.

Outposts seem to have been pushed for some distance across the Run, and guns to have been posted so as to command the various fords, but it is not clear whether steps were taken to establish and maintain contact with the enemy.

The total frontage occupied was about eight miles, which is considerable having regard to the strength of the force, to the armament, and to the other conditions prevailing, though it is to be remembered that the Run was passable only at the fords.

Moreover, though certain brigades could easily afford one another support, for lateral communications were reasonably well developed, the force was scattered along the whole frontage occupied.

A better arrangement would perhaps have been to have guarded the fords with as few men as possible, whilst the remainder were retained in a favourable position, either behind a flank or behind the centre, ready to strike when the enemy had committed himself to action.

Obliged to halt during 18th to close up and reform his disorganized troops, McDowell, at 8-15 A.M. on that date, issued orders to Tyler to observe carefully the roads leading to the Bull Run and towards Warrenton, and, whilst avoiding an engagement, so to manœuvre as to confirm the enemy in the impression that the Federals were moving on Warrenton. It does not seem that any measures had been taken to maintain touch with and watch closely the enemy.

Under cover of these operations McDowell proposed, apparently for the first time, to reconnoitre the ground over which he proposed to advance, *viz.*, in the direction of Union Mills.

Tyler interpreted his instructions as necessitating a mild offensive, and consequently led forward from Centerville one company of cavalry and two of infantry, heading towards Mitchell's and Blackburn's Fords.

Finding these held by the enemy, he called up two 20-pounder field guns, a field battery of six guns, and an infantry brigade. After a short cannonade the brigade, with two guns and the company of cavalry, was ordered to search the woods on the banks of the Bull Run. Coming almost immediately under the close fire of the enemy the Federals were driven back in disorder, and after some further desultory cannonading fell back on Centerville, apparently unpursued.

The actual losses in this affair were very small, 83 on the federal and 69 on the confederate side, but the moral effects produced both on the public and on the troops on both sides were, as is often the case at the beginning of a campaign, out of all proportion to the importance of the action.

In the South a confident feeling was aroused, in the North, where people had been sure of easy victory, an unreasonable depression supervened.

So great indeed was the revulsion of feeling amongst some of the federal soldiers on finding that the enemy could offer a determined resistance, that one battery and one battalion, whose three months' engagement had that day expired, insisted on marching back to Washington in spite of the entreaties of the Secretary of War, who was in the camp, and actually away from the sound of the enemy's guns.

His reconnaissance having shown McDowell that operations in the direction of Union Mills were impracticable owing to the intricate nature of the country, and the action of 18th having shown that a direct attack against the enemy's front was unlikely to be successful, the federal commander was forced to formulate a fresh plan.

For this, so far as the Federals were concerned, there was plenty of time, for McDowell now found it absolutely necessary to remain halted on 19th and 20th in order to replenish supplies and to rest his men.

He therefore again caused reconnaissances of the area to be made, and after comparison of the reports decided to turn the confederate left, with the object of separating Johnston, who might now perhaps be expected on the scene, from Beauregard, by obtaining possession of the Warrenton road and destroying the Warrenton-Strasburg railway.

Meanwhile Beauregard, whose information had led him to form an exaggerated estimate of the enemy's strength, had remained quite inactive, even telegraphing to Richmond that unless reinforced he would be obliged to retire to Fredericksburg.

On the afternoon of 20th, Johnston, who had preceded his troops, reached Beauregard's headquarters with the news that about 8,000 men and 20 guns, including the brigades of Bee, Bartow, Jackson

and Kirby Smith, would shortly arrive from the Shenandoah valley, rolling-stock not being available for the transportation of larger numbers.

At about the same time Holmes, who had now been recalled, came in with 1,250 men and six guns from Acquia Creek, and was posted at Union Mills in support of Ewell.

Johnston had experienced no difficulty in slipping away from Patterson, who seems to have been contained by a small body of cavalry, but Patterson had had so much trouble with his own troops that he could pay but little attention to the doings of the enemy, and was actually forced by his own men to retire, on 20th, to Harper's Ferry.

The units allotted to Patterson appear indeed to have been of unusually poor quality, and even less disciplined than were their comrades at Washington, though it can be urged on their behalf that they had received no pay, and but little food, and that many were without shoes and even without trousers. The men had enlisted for three months only, and sick of hardship, as their period of service was about to expire, all except four battalions absolutely refused to remain under arms one day beyond their legal term of service.

Johnston's men do not seem to have been in much better condition to take the field, and he has placed it on record that the discouragement of the first day's march, on 18th, and the slow rate of travelling, was such as to make him despair of reaching Beauregard in time for the expected battle.

The Shenandoah troops began to arrive on the afternoon of 20th, and as they came up the brigades of Bee and Bartow were placed between McLean's and Blackburn's Fords, and that of Jackson between Blackburn's and Mitchell's Fords.

The Confederates by these dispositions had therefore accumulated force on their right as if with the intention of taking the offensive from this flank should the enemy attack elsewhere, or as if an attack on the right was expected, which may well have been the case seeing how badly the military secrets of the Federals had been kept.

Both Johnston and Beauregard claim to have commanded during the battle of Bull Run, a misunderstanding which seems to have arisen from the fact that Johnston, though senior, permitted Beauregard, who was acquainted with the topography, to draw up the plan of battle, and in addition allowed him to retain command of his own troops, which formed the majority of the army.

On the arrival of Johnston at Manassas a conference seems to have taken place between the two generals, at which Johnston urged that the Federals should be attacked before Patterson's men could be brought round from Harper's Ferry. This policy was agreed upon, and Beauregard was directed to draw up a plan of action. Though close contact with the enemy does not appear to have been maintained, the service of information of the Confederates was sufficiently well managed for Beauregard to be aware that the bulk of the enemy's troops were lying round Centerville. He therefore proposed

that four brigades should advance from the east towards this place, whilst six brigades moved forward by the Union Mills-Centerville road to envelop the enemy's left and sever his communications.

Against this project the only criticism that can be levied is that it seems to have been founded rather on supposition than on actual knowledge of the enemy's position, whilst the passage of the Run must have taken so long that surprise of the enemy would not have been probable. It may also be urged that improvised armies are more likely to attain success when adopting the defensive-offensive than when undertaking offensive operations in an intricate and densely wooded area.

Meanwhile, as has been mentioned, McDowell had decided to turn the confederate left, by marching a portion of his force, by night, first to Sudley Springs and then down the right bank of the Bull Run. A considerable body was to remain at Centerville and Alexandria to guard the line of communication, and another large detachment was to demonstrate against the enemy's left, crossing the river as the advance of the turning force cleared the passages.

This plan possessed several serious faults. Every available man was not employed, a large number being detailed to guard the line of communication who would therefore only be available for fighting on the day after the battle. The plan was complicated, and its successful execution would have demanded perfection of staff work and exactitude in timing of marches not within McDowell's power to command. Again, night operations are precarious even when carried out by the best led and trained armies and are very rarely successful when undertaken by raw troops with inexperienced leaders.

The force under orders of McDowell was at this juncture disposed as follows—(see sketch 3):—

One division, that of Runyon, had been left to guard the road to Alexandria; of the remainder the brigades of Schenk and Sherman of Tyler's division were one mile west of Centerville, whilst Keyes' brigade was nearly as far to the east of that place; Hunter's division and that of Heintzelmann were about a mile to the south-east of Centerville, and Miles' division was also south-east of Centerville, but nearer to that place than were the others.

According to orders issued on 20th, a force under Miles, consisting of his own division, of Richardson's brigade of Tyler's division, and of three batteries, was to hold Centerville and at the same time threaten Blackburn's Ford.

The remainder of Tyler's division was to march at 2-30 A.M. on 21st, on the Stone Bridge, and was to open fire at daybreak with the object of containing the enemy during the progress of the turning movement.

As soon as Tyler's troops had cleared their front, Hunter's division, followed by that of Heintzelmann, the two comprising 18,000 men and 24 guns, was to move by a track leading to Sudley Springs, and then down the Bull Run.

The object of this arrangement was doubtless to place Tyler in position to protect the troops undertaking the outflanking movement until they had cleared the track, but as the distance that they must cover before they could come to grips with the enemy was four or five times as great as that to be traversed by Tyler's men, and also because of the fact that delays were not unlikely to occur in moving Tyler's force to the west of the cross roads, it would seem that one of Tyler's brigades might preferably have been pushed towards Stone Bridge, the rest of the division following, not preceding, those of Hunter and Heintzelmann.

It had been arranged that three days' rations were to be issued to the troops on 20th, but Tyler's units did not receive their rations until the evening, and as a result were late in moving off. The troops of Hunter and Heintzelmann, who paraded too soon, were therefore obliged to wait for nearly three hours under arms and in the darkness. Meanwhile no steps had apparently been taken to keep touch with and watch the movements of the enemy.

When at last a start was made, the track, which had been reconnoitred only by day, was found to be difficult to follow in the darkness; consequently though the distance to be traversed to Sudley Springs was only about six miles, the troops, owing to the mistakes made by the leaders of the column, traversed quite twice that distance before reaching the Run.

The turning column consequently did not arrive at Sudley Springs until 9-30 A.M., at which hour the men were already tired out with their long march and wait, whilst the enemy had discovered that an outflanking movement was in progress.

During the night 20th-21st the confederate outposts had reported that the enemy was concentrating on the Warrenton Turnpike, and at 4-30 A.M., Beauregard issued a warning to his brigadiers to be prepared to move at a moment's notice, and that an attack might be expected against the Stone Bridge. At 5 A.M., Evans began to skirmish at the Stone Bridge with Tyler's troops, and on receipt of this information Beauregard, sending orders to Bee, Bartow, and Jackson, to support Evans, resolved on a counter-offensive, and issued orders for the right and centre to advance on Centerville, Ewell leading, then Jones, Longstreet, and Bonham, in this order. Had this movement been carried out both forces would have been simultaneously advancing against one another's lines of communication, but the Federals, who had got the start, would have been nearer to that of the Confederates than the Confederates to that of the Federals. The advantage of position would therefore have lain with the Federals, but even in such circumstances the determination of the commander to persevere, and the resolution of the troops to win, are of more importance than are advantageous positions.

The order to advance however failed to reach Ewell, so the counter-attack was never begun.

At about 8 A.M. Evans, who had not been deceived by the somewhat feeble operations of Tyler, observed to the north-west

and in the direction of Sudley Springs, a cloud of dust, and suspecting an outflanking movement was in progress at once took measures to meet the danger.

Leaving only four companies to contain the three brigades of Tyler, and sending word to Cocke, who was on his right, of his intention, he led the remainder of his detachment, amounting to one battalion and six companies, and two six-pounder howitzers, to the high ground immediately north of Young's Branch. Here he drew up his little force, the left on the Sudley Springs-Newmarket road, the centre and right in a copse, with one gun on each flank.

The Federals were not long in challenging Evans, and at 9.45 A.M., Burnside's brigade, which was leading the federal column, issuing from the woods which hid Sudley from the view of the Confederates, advanced to attack, supported by the fire of eight guns.

The Federals were driven back, but soon rallied when Porter's brigade arrived in support of that of Burnside, whilst another battery of six guns took up the covering fire.

At about 10.30 A.M., the Federals had so far improved their position that the troops with Evans were beginning to waver, and he was constrained to apply for assistance to Bee, who on hearing of the attack on the confederate left, had, in accordance with the order sent him by Beauregard, followed Evans with his own brigade and that of Bartow, accompanied by a battery commanded by Imboden.

At 10 A.M., Bee had posted the two brigades on the plateau south of Young's Branch, about a mile behind the position occupied by Evans, which was probably thought to be too far forward to be a suitable line for protracted defence, though sufficiently well adapted for the purpose of delaying the enemy.

Bee in reply to the request of Evans for assistance suggested that Evans should retire to the plateau, but on the representations of Evans that his troops were too closely engaged to be able to fall back, and that his retirement would open the Stone Bridge to the passage of the enemy's troops and enable the divided portions of his force to join hands, Bee, at 11 A.M., led forward the bulk of his two brigades to reinforce the centre of Evans' line, at the same time sending a detachment to support the two companies holding the Stone Bridge.

This reinforcement enabled the Confederates to hold their own until the advent of the leading brigades of Heintzelmann's division, which soon afterwards came up along the Sudley road and began to outflank the left of Evans' line.

At 11.30 A.M. the Confederates again began to give way, and at about the same time the troops of Tyler commenced to cross the Run by a ford above the Stone Bridge which had been indicated to their scouts by being incutiously used by some confederate troopers.

As a result the whole confederate line fell back in great confusion to the plateau south of Young's Branch, covered by the fire of Imboden's battery from the plateau, and by Hampton's legion which had been posted on a spur jutting out towards the Stone Bridge.

The federal batteries galloping forward to the ground vacated by the Confederates opened a vigorous cannonade on the retreating troops, and on Imboden, who having almost expended his ammunition was soon silenced and obliged to limber up. Hampton, deprived of artillery support, now also began to retire; the troops of Bee and Bartow had not rallied; the pursuing columns of the Federals were pressing on; and all seemed lost.

Meanwhile Johnston and Beauregard who had been awaiting near Mitchell's Ford the sounds of the counter-attack in the direction of Centerville, heard, at about 10 A.M., that their orders had miscarried.

Though no one at headquarters seems to have been accurately informed of what was happening on the left, the sounds of firing, which had for some time been audible in that direction, now became so loud that it was obvious that the enemy must be fast gaining ground, and that assistance must be despatched to that quarter.

The brigades of Holmes and Early and two battalions of Bonham's brigade, were therefore hurried northwards, accompanied by a battery of six guns, and the brigade of Kirby Smith, which was just coming in by train from the Shenandoah valley, was ordered to move as soon as possible in the same direction.

At the same time the brigades of Ewell, Jones, and Longstreet, were directed to demonstrate across the Bull Run.

This move it is difficult to justify, for so far as Johnston and Beauregard were aware the Confederates could only hope for victory either by defeating the troops attacking their left, or by an advance in the greatest possible force on Centerville; and if the latter operation were undertaken and failed to produce an immediate effect in reducing the vigour of the federal attack on the southern left, the situation of the Confederates would have been serious.

Having issued these orders the two generals rode towards their left, taking with them two batteries, and arrived on the plateau at about noon, just as the troops of Bee, Bartow, and Evans were streaming across the hill in disorder.

The only hope of stemming the rout lay in Jackson's brigade, which having been moved to the sound of battle by its commander, was found formed up about five hundred yards behind the crest of the plateau, where it was sheltered from the enemy's artillery fire, and could also obtain some cover from his musketry amongst the pines of a small copse. On the left of Jackson stood Stuart with a small body of horse—(see sketch 4).

The two generals and their staffs, seeing that the situation was critical, galloped amongst the fugitives, whom with the assistance of the brigadiers they succeeded in rallying, partly by pointing to the confident bearing of Jackson's men, happily likened by Bee to a stone wall, partly by planting colours on which a few of the braver spirits were induced to form.

But the defeat of the confederate left would probably not have been repaired but for an incident which gave them a welcome respite from attack.

McDowell, who had come on to the field a little earlier than the confederate generals, had immediately on arrival ordered a direct pursuit by the brigades of Burnside and Porter, sending word to Tyler to hurry across the river and operate against the confederate right.

Almost immediately Burnside rode up and requested permission to be allowed to withdraw his men from action, as they had almost expended their ammunition.

For this leave was accorded, but the check thus given to the impetus of the pursuit, and the bad example set to the remainder of the troops, so far added to the difficulty of reforming and leading them forward that a pause occurred in the action, the Confederates being given a breathing space.

The Confederates were therefore able to reform on Jackson's brigade, which now became the centre of the line, the rest being on either flank, with some recently arrived battalions of Cockes' brigade nearest the river, and the whole front covered by a swarm of skirmishers.

In all about 6,500 men and 13 guns were collected on the plateau, and of these Beauregard took command whilst Johnston rode off southwards to hurry up the reinforcements.

Against these 6,500 Southerners McDowell could bring the brigades of Porter, Franklin, Willcox, and Sherman, and one battalion of cavalry, all of which were south of the river, in close touch with the enemy, and must have mustered between 9,000—10,000 bayonets and sabres. In addition Howard's brigade of Heintzelmann's division was coming up from Sudley Springs, and the passage over the Stone Bridge had been opened for the two remaining brigades of Tyler's force. Moreover the way had been cleared for a vigorous offensive on the part of Miles, for half of the force originally standing opposite his detachment had been drawn into the action at Young's Branch.

It would seem then that a federal victory must have resulted had the whole Federal army co-operated with energy, but co-operation is as difficult to attain as it is necessary for success, and want of co-operation was yet to lose the battle for the Federals.

Nevertheless things at first went well for the Northerners, who in spite of the difficulty experienced in crossing the marshy Young's Branch, easily drove back the enemy's skirmishers, and at about 1 P.M. made good the northern edge of the plateau.

Two batteries were at once brought forward to afford the infantry support in the close fire action which now took place, but they were unable to hold their own against the four or five batteries now in the Confederate position, and were soon afterwards captured by a counter-attack ordered by Beauregard, who thought that he saw indications of attempts by the enemy to outflank his left. During this counter-attack Stuart distinguished himself by routing with his 150 troopers a federal battalion of New York Zouaves.

Meanwhile Tyler had effected little, for his two brigades had so far lost themselves in the woods bordering the Bull Run that they had hardly troubled the confederate right.

Reinforced at about 2 P.M. by the brigade of Howard, the Federals were able to reoccupy the northern edge of the plateau, to retake the guns, and even to close on the enemy's line.

But now a second counter-attack was delivered by two of Jackson's battalions who, reserving their fire until the Federals were within 50 yards, then charged, clearing most of the plateau, and again taking the batteries. They were, however, unable to drive Howard from a knoll lying to the south of Young's Branch and to the east of the latter in Grovetown—(see sketch 4). At this moment two battalions of Bonham's confederate brigade came on the scene, followed by a battalion of Cocke's brigade escorting a battery, and these troops engaged Howard, who was nevertheless able to hold his ground until the brigades of Porter, Sherman, Franklin, and Wilcox, who were retiring across Young's Branch, had cleared the stream and had formed up on the heights to the north of it.

This operation was completed at about 3 P.M. when Kirby Smith's brigade came on to the field with a battery, and extending the confederate left began to envelop Howard, who was driven across Young's Branch.

Further reinforcements now reached the Confederates in the shape of Early's brigade, which brought another battery, and, forming on the left of Kirby Smith, attacked the federal right on the hills to the north of the Branch. At the same time Beauregard, leaving Jackson's brigade to hold the plateau, led the remainder of the troops across the Branch against the federal front—(see sketch 5).

As a result, at about 4 P.M. the federal army began to break up and leave the field, covered by Sykes' battalion of regulars and by Sherman's brigade, which still maintained their ranks.

Until 5 P.M., by which time most of them had crossed the Bull Run, the men fell back without order, but without panic, because not closely pressed by the victors. At this juncture, however, on coming under the fire of a single confederate battery, the troops for the most part fell into rout and dispersed, throwing away their arms, whilst those who were able to do so rode off on draught horses taken from the wagons.

So hurriedly in fact did some of the men of the beaten army make their way to Washington that at daybreak next morning the first of the stragglers reached that city, having covered some 45 miles since the beginning of the retirement.

Sherman and Sykes were relieved of rear-guard duties near Centerville by the troops under Miles, who had fallen back after some abortive skirmishing with the confederate brigades of Jones and Longstreet, and who were not affected by the demoralisation which had overtaken the remainder of the force.

The confederate pursuit, never very vigorous, was soon abandoned owing, it is said, to a report that a large force of the enemy was advancing on Blackburn's Ford. By the time it had been discovered that these troops were the brigade of Jones returning from their skirmish with Miles, the main body of the Northerners had disappeared.

Johnston therefore directed Ewell to advance from Union Mill, and cut off the enemy from Washington. But evening was falling, and in these circumstances Ewell was by no means disposed to tackle Miles, so in the end only a few cavalry harassed the retreating Northerners.

Johnston in explanation of the absence of pursuit states that the Confederates were more disorganized by victory than the Federals by defeat, a sufficiently good excuse for supineness, though perhaps not an adequate reason for failure to gather the fruits of his victory.

Such excuses indeed are not heard from great generals, who without wasting time in contemplating their own difficulties, look rather at the mental and physical condition of their opponents, and count not the dangers but the advantages that will accrue from any particular course of action. Had the Confederates pushed forward with every available man organized or disorganized, they could safely have counted on finding an enemy in a worse condition than themselves and might possibly have taken Washington in the mere impetus of their advance, for it is now known that the Federals were not prepared to offer serious resistance in defence of the capital.

To claim that the fall of Washington would have ended the war at one stroke is to offer a gratuitous insult to the resolution of the people of the North. At the same time it is certain that the capture of Washington would have been of the greatest service to the Secessionists, in confirming the attitude of waverers, and in enabling the South to raise loans and to obtain arms from Europe on advantageous terms.

The condition of the federal troops after the action may be judged from the following extracts from the official reports of the various generals:—

Of the behaviour of the men during the retreat General McDowell writes that when they suddenly came under the fire of the confederate battery, "the soldiers threw themselves into the woods to our right and rear, and opening fire on their own side caused the men in front to break and retire. This brought about a confusion which soon degenerated into a disorder for which there was no remedy. A battalion of regular infantry alone maintained itself until our men could cross the Warrenton Turnpike, but soon the plain was covered with retreating troops who seemed to infect those with whom they came in contact, so that the retreat rapidly degenerated into a rout, and the rout into a panic."

Of the conduct of the New York Zouaves who, it will be remembered, were broken by the timely charge of Stuart, General Porter says:—"The evanescent courage of the Zouaves prompted them to fire perhaps a hundred shots when they broke and fled, leaving the guns which they were escorting." Heintzelmann also writes of this unit, "in the meantime I sent orders for the Zouaves to move forward to support Ricket's battery on the right. As soon

as they came up I led them against an Alabama regiment, partly concealed in a clump of small pines, but at the first fire they broke and the greater portion began to fly to the rear keeping up a desultory fire over the heads of their comrades in front. At this moment the regiment was charged by a company of secession cavalry, who came by a road between two strips of wood. On these the colonel, and a few officers who behaved gallantly, opened fire, killing one and wounding four of the horsemen, but the regiment of Zouaves disbanded, and as a regiment did not again appear on the field."

The behaviour of the Federals, then, was such as might reasonably have been expected from a beaten army composed of troops who had not yet acquired the cohesion which springs only from close and long association.

An officer who was present wrote that "the men fought as individuals, and when beaten retired as individuals."

This phenomenon is to be explained by the fact that the soldier who has acquired the instinct of cohesion, feels safest in the ranks where he is sure of the support of his comrades. But the volunteer feels most secure when alone, has no confidence in his comrades, and his instinct is not to hold to them, but to leave the ranks in the event of danger.

In the battle the Federals lost in killed and wounded nearly 3,000 men, whilst 1,600 wounded and unwounded prisoners were captured, besides 28 guns, 500,000 rounds of small arm ammunition, 5,000 muskets, 9 colours, and 4,500 sets of accoutrements. The large number of killed and wounded in proportion to the numbers closely engaged—some 20,000—is sufficient indication that it was not so much courage as training that was lacking in the troops. On the Confederate side some 2,000 were killed and wounded out of 18,000 closely engaged.

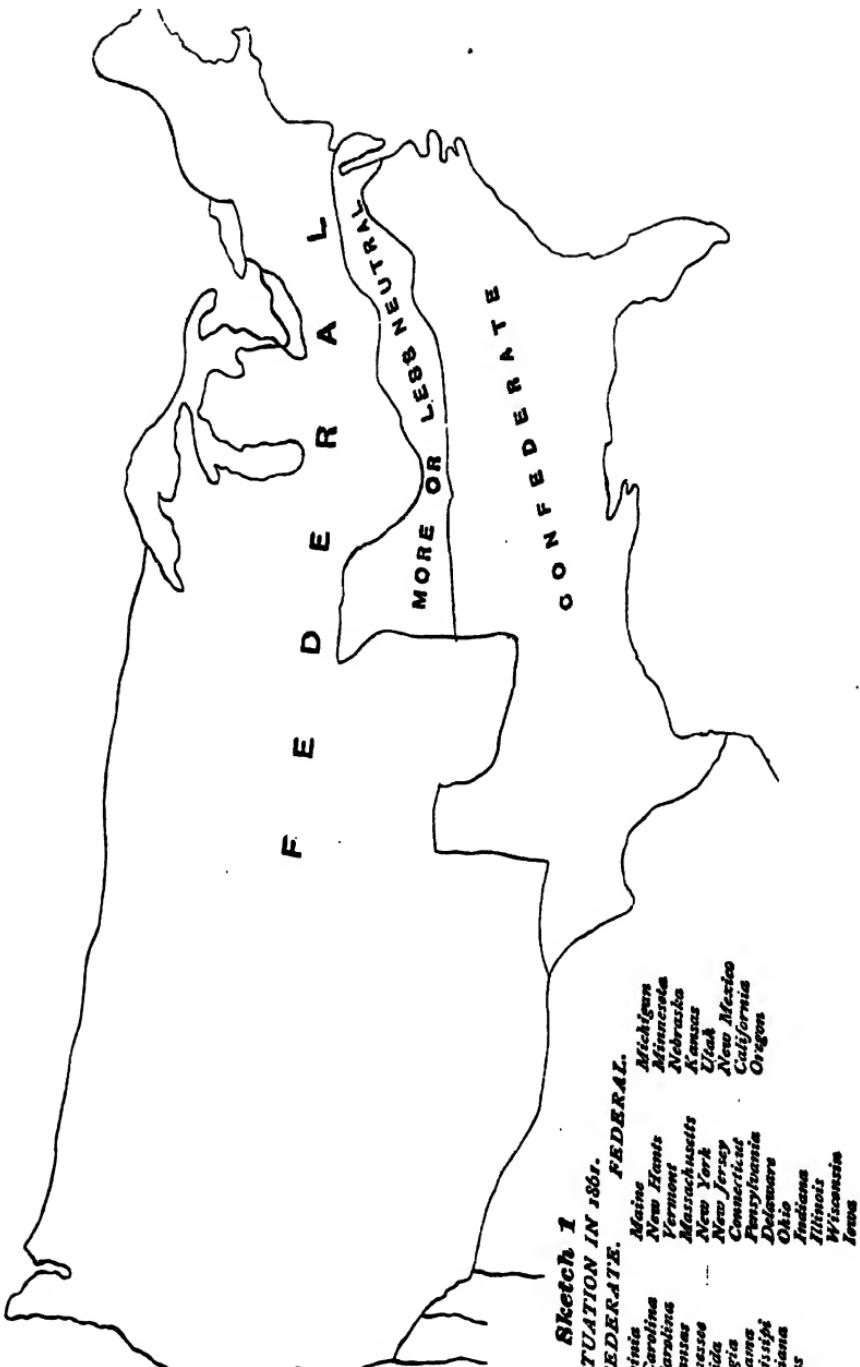
As is the case with any campaign, no matter how insignificant, there are many valuable lessons to be learnt from these operations, of which the following are some of the principal:—

The first and perhaps most important lesson to soldiers is that war is an uncommonly difficult business, and that in the leading of armies, any but the most gifted individuals, who in addition have acquired an extensive knowledge of the theory and practice of their profession, are but little likely to attain even a small measure of success.

From these operations may be learnt how essential it is to obtain and never lose contact with the enemy, if surprise is to be avoided.

Success is rarely attained by half measures, and this is as true in war as in any other enterprise. In war it is a maxim to strike where the greatest results will be obtained, and to strike with every available man.

A great commander has hardly ever accepted such a risk as is involved in an advance against a position not previously reconnoitred. The most daring of leaders have been those who were most careful to omit nothing calculated to insure success.



Sketch 1
SITUATION IN 1861.

CONFEDERATE. FEDERAL.

Virginia	Maine	Michigan
N. Carolina	New Hampshire	Minnesota
S. Carolina	Vermont	Nebraska
Arkansas	Massachusetts	Kansas
Tennessee	New York	Utah
Florida	New Jersey	New Mexico
Georgia	Connecticut	California
Alabama	Pennsylvania	Oregon
Mississippi	Delaware	
Louisiana	Ohio	
Texas	Indiana	
	Illinois	
	Wisconsin	
	Iowa	

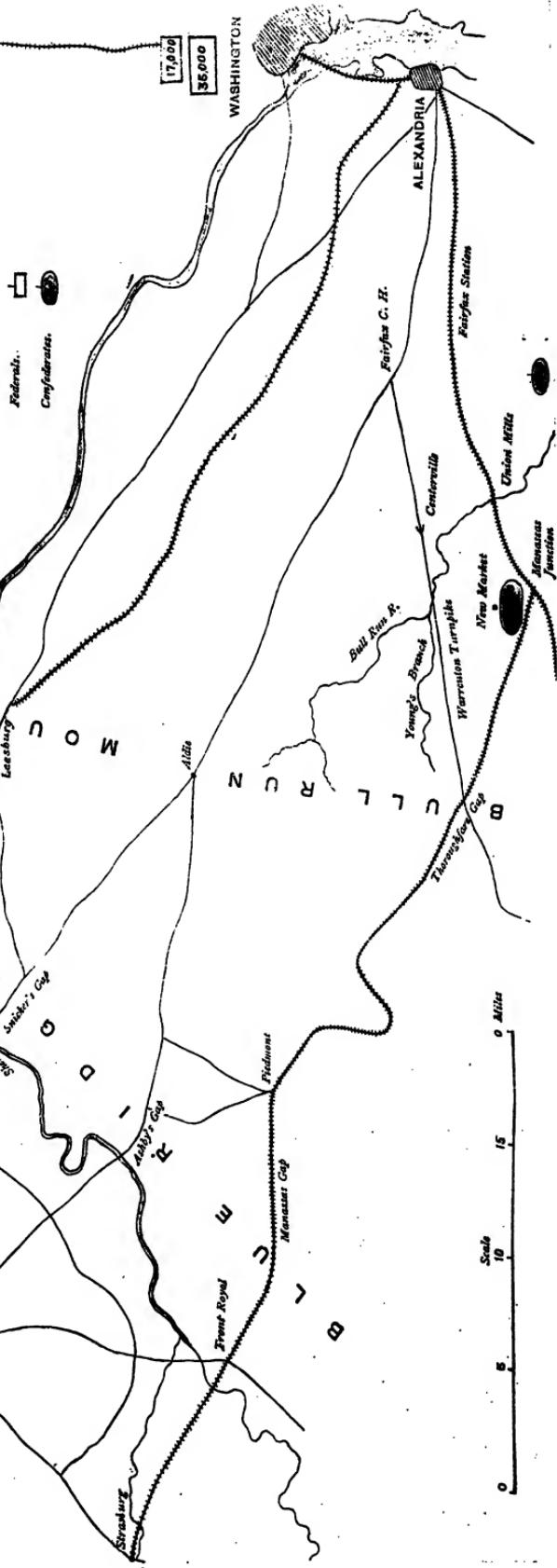
NEUTRAL.
Maryland
Kentucky
Missouri

Baltimore and Ohio Railway

Sketch 2.

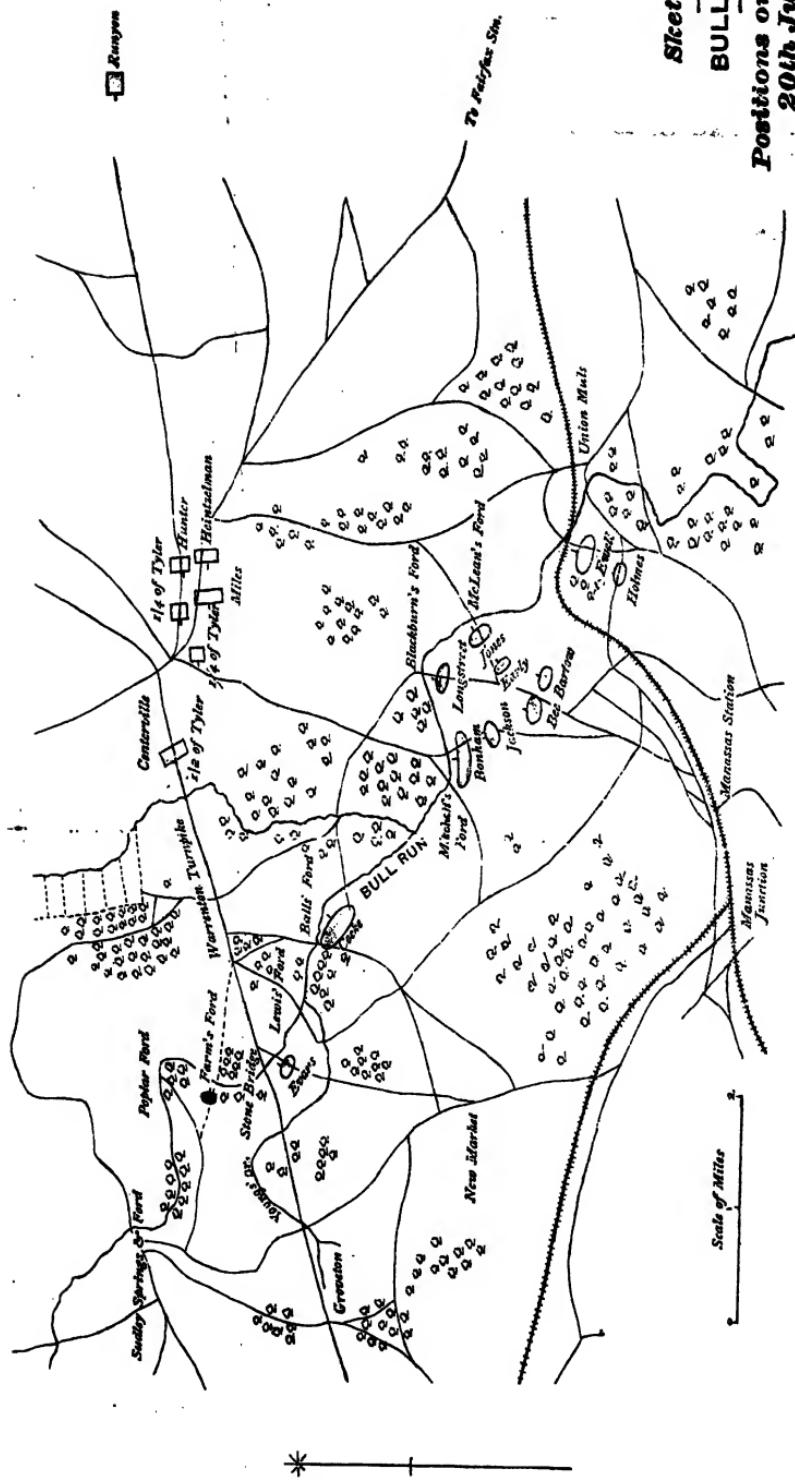
THE CAMPAIGN OF BULL RUN, 1861.

NOTE.—The Federal forces, that there were about 35,000 Confederates at Manassas, and about 30,000 Federals that assisted the Federal forces at Washington, about 50,000,000, these had Confederates at 30,000.

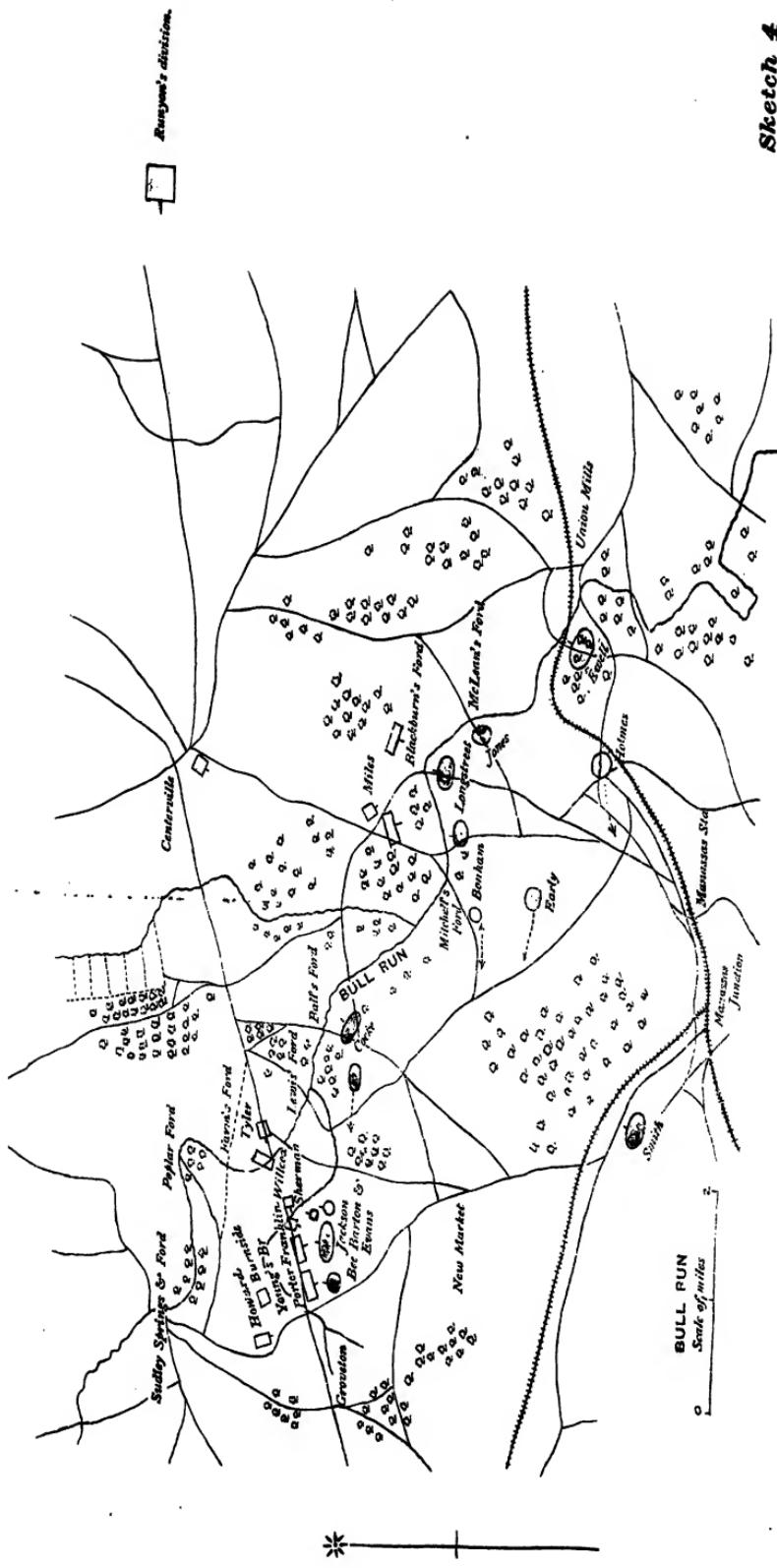


Sketch 3.
BULL RUN.
 Positions on evening of
 20th July 1861.

Sabots
 Cannister

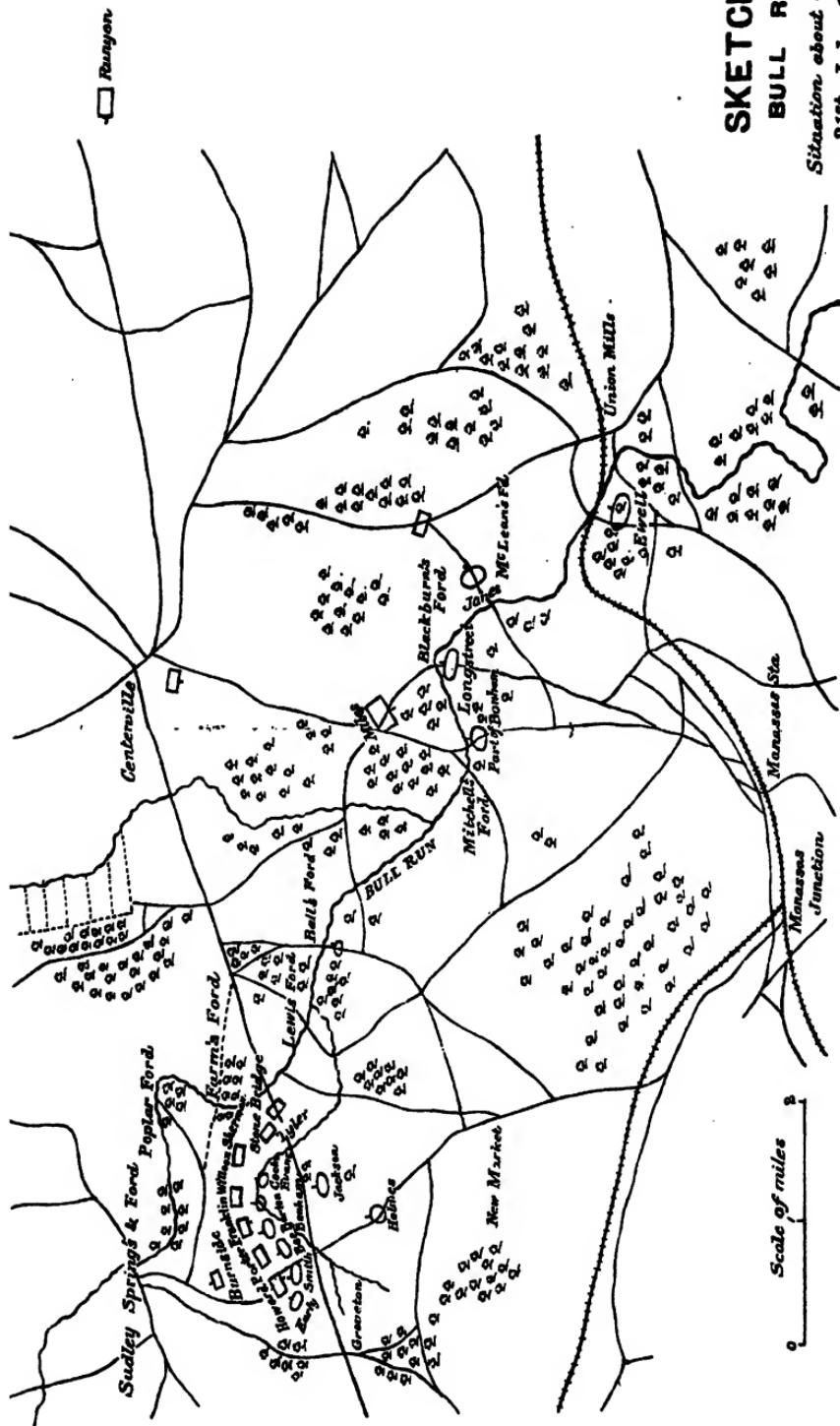


Sketch 4
BULL RUN.
Positions about noon
21st July 1861.



SKETCH 5
BULL RUN

Situation about 4 p.m.
21st July 1861.



Surprise is such an important factor in war that nothing should be left undone to secure the deception of the enemy as to what is intended. But surprise depends largely on rapidity of execution, and this can hardly be obtained without efficiency of organization and training.

Complicated operations are so difficult of execution that in any circumstances the probability of success is reduced from the outset, but they are little likely to be successfully carried out by raw troops and untrained staffs.

The sensitiveness of the Federals as to the safety of their line of communication exemplifies the disadvantage of fighting in a position more or less parallel to the line of communication.

A general can almost always be certain that the force at his disposal will be exaggerated by his opponent, and usually that the enemy will be absorbed in the difficulties of his own situation.

The importance of establishing an efficient system of inter-communication is clearly demonstrated, as well as of taking measures to insure that orders reach those for whom they are intended.

The course of the battle shows that the enemy must be given no respite until he has been completely defeated, and that containing action to be effective must be so energetic as to impose upon the enemy.

The evils that may result from undue interference by the public in the conduct of military affairs have never been more strikingly illustrated, nor has the absolute necessity for press censorship ever been more clearly established.

Lastly, the whole course of the operations teaches that courage born of patriotism, sense of duty, or enthusiasm, will not suffice to win battles. Such courage must be tempered by discipline, for in a disciplined force the example of the braver elements influences the action of the remainder, whereas, when discipline is absent, troops in the stress of battle are most often actuated by the example of the baser and more cowardly portions. As Napoleon wrote, steadfastness and discipline stand higher in the category of military virtues than does courage.

Discipline and cohesion are the products of long and careful training, and cannot be improvised. Two pieces of iron cannot be welded with a single blow.

SOMALILAND.

BY CAPTAIN H. HUGHES HALLETT.

Before considering the actual events of the various campaigns in Somaliland, it is first necessary to understand some of the main causes which made the overthrow of a somewhat insignificant enemy so very difficult.

The first cause was our complete ignorance of the country. The various columns were often as much parties of explorers as fighting bodies. To this must be added the great distances to be traversed, which resulted in the exhaustion of the transport before even an approach could be made to the enemy.

The second cause was the total absence of supplies except meat. The inland Somalis are an entirely nomad and pastoral people. In connection with this there was a story told during the expedition of a certain place on the lines of communication where the local Somalis made an official complaint to the post commandant that an Arab trader was insulting their country by making a garden.

The third cause was want of water; there were no rivers in the part of Somaliland in which the operations took place, and wells often lay from five to six days' march apart. Even with a minimum ration of one gallon per man, and not more than two to four gallons per horse, it may be imagined what an immense increase in transport was necessary.

Bound up with this was the limit put to offensive movements, in that it was dangerous to institute a march in any new direction, without first making certain that water would be forthcoming at the end of the march.

The last cause of importance was the indifference of the so-called friendly Somalis. They perhaps had some excuse for a distrust of our policy. In 1898 the British Government transferred to Abyssinia many Somalis who had previously been under our suzerainty. These tribes had up to that time been on friendly terms with us and apparently contented. The same tribes subsequently fought against us under the Mullah. The instability of our policy may have made the Somalis in our own defined territory suspicious.

From whatever reason, the help received during the different expeditions was not very great. The Somalis consented to receive our pay, but their heart was not in their business. They refused to submit to discipline, and although I believe among the bravest of shikaris, they soon won a most unenviable reputation of being confirmed bolters. This with an extraordinary conceit made them almost impossible to work with, and as we were unfortunately very dependent on them for scouts and transport drivers, the already serious difficulties were much increased.

Somaliland is divided into the spheres of influence of Great Britain, France, Italy, and Abyssinia. The part of the country with which we are dealing may be generally described as follows. Taking a line from the coast to the interior, there first comes a maritime plain of varying width. At Berbera it is ten miles wide. Then comes a range of maritime mountains, and beyond these again a plateau, stretching far to the south, with gradually descending slope.

This plateau, called the Haud, is a great desert covered with scrub and mimosa, and dotted here and there with wells either singly or in groups. The scrub is often thick; in parts it becomes dense bush, though never so thick as that found in West Africa for example. In the Haud the field of view is generally restricted.

The Haud is cut in two by the Nogal Valley. This valley, about 280 miles long and for a considerable part of its length 50 miles broad, is bounded by steep cliffs broken by passes. It is, comparatively speaking, well watered, that is to say, wells exist on most of the routes at not more than a day's march apart:—

The strategy of any campaign in this part of Somaliland depends largely on the Nogal, and for the following reason.

While the Haud affords grazing at all times for camels, for some months that for sheep and cattle becomes so poor that the Somalis from far and near flock into the Nogal, where the grazing at the same period is very rich. It can thus be seen that the occupation of the Nogal at the proper time of the year forces the Somalis either to fight or to starve, as indeed happened later. The Mudug Oasis further south bears much the same importance as the Nogal, and for the same reason.

The climate of Somaliland is by no means bad; it is dry, and never so hot as the Punjab in the hot weather, and generally speaking the troops kept very fit.

To turn now to the strategy of the Mullah.

As a leader he may be said to have shown marked ability. He appears exactly to have realised our difficulties, and after a little experience his own limitations. His strategy was quite simple. His method was to retreat gradually before our columns, until their lines of communication had become intolerably lengthened out, and the fighting head had become reduced to a mere fraction. On this fighting head he would then fall, and either destroy it or send it back much damaged in the direction from which it came.

We now come to the Somali tactics, and they are very interesting. The best fighting men were mounted, and it was they who were armed with rifles. They did not, as I find is often the impression, make wild charges in the Dervish fashion. On the contrary, they made much the same use of their ponies as do our mounted infantry.

When attacking they fought in extended order, taking every advantage of cover. In fact as our formation was usually the square, their methods may be said to have been more up to date

than our own. Like many savage nations, the Somalis almost invariably attempted to envelop their opponents, and this, owing to the mass of transport to be protected, forced us to adopt an elastic but unwieldy square formation.

As we marched so we bivouacked, the camp at night being surrounded by a small zeriba, more as an alignment for the troops than as an actually serious protection. To the great comfort and satisfaction of the force, the Mullah never attempted night operations.

In connection with their tactics, a curious and ingenious battle organization was adopted by the Somalis. Each individual rifleman went about like knight of old with a tail of spearmen. If a rifleman was knocked over, a spearman took up his rifle and ammunition and carried on the fight. In this way even with a heavy casualty list, much the same number of rifles remained in action from first to last.

It was in 1899 that the Mullah first started a series of raids against our friendly tribes. After much haggling over expense, an expedition was decided upon. The blue-book on this subject affords rather curious and interesting reading. It was considered unnecessary to employ regular troops in the suppression of so insignificant a freebooter, and Colonel (then Captain) Swayne was ordered to raise a rather scratch corps of local levies.

The first expedition started from Burao in May 1901, rather a long time after the raids first started. Owing to the character of the troops employed, this expedition chiefly consisted of a series of raids and counter-raids.

Two fights, however, of a certain importance occurred. The first was an attack by the Mullah on a strong zeriba held by Captain McNeil at Samala. The Mullah here incurred considerable loss, which had the unfortunate effect of deterring him from ever again attacking fortified places. The next fight occurred at Ferdiddin; the Mullah was here again beaten, this time by Colonel Swayne, but not very badly, and the day after the fight Swayne returned to Burao.

There now occurred a pause of over a year, which enabled the Mullah not only to recoup his losses, but materially to increase his prestige. By the time the second expedition started he is said to have had some 1,500 rifles.

Colonel Swayne's force was now stiffened by the addition of 300 trained African soldiers from Nyassaland. These troops, generally known as the Yaos, raised his strength to about 2,300 men. On October 6th, 1902, the opposing forces met at Erigo. On Swayne's right were the Yaos, and on them the first attack of the Mullah fell. A very few minutes sufficed to convince the hostile Somalis that but little profit was to be gained at this point, and the attack swerved round to Swayne's left and rear.

With the exception of two companies immediately next the Yaos, almost the whole of the levies were seized with panic and fled.

The transport was stampeded, and one maxim was taken by the enemy. Contented with this success, the Mullah drew off a little, and next day Colonel Swayne retreated unmolested to Bohotle.

It was now recognised that the suppression of the Mullah was a much more serious business than at first thought. A proper expedition was accordingly organized. British and Boer mounted infantry were brought up from South Africa; considerable reinforcements, including 200 of the Bikanir Camel Corps, were brought from India; while further contingents of Sikhs, Yaos, and Sudanese were collected from Nyassaland and Uganda.

At the same time the sanction of the Italian Government was obtained to operations taking place in their country. The Italians had trading posts further south, which they were anxious that the Mullah should not interfere with, but as they had no troops in this part of Africa, it was arranged that the Abyssinians, who had also been annoyed by the Mullah, should co-operate with us to prevent his escaping either towards the Webbi Shebeli, or west towards their own territory.

General Manning now took over command. His plan was to land in Italian Somaliland at Obbia with the main column, and strike at the Mudug region where the Mullah was supposed to be.

A second column was to operate based on Bohotle, and moving down from the north to co-operate with the Obbia column, while the Abyssinians, in the execution of their special task, were to occupy a line from Faf northwards, and Galadi on the Webbi Shebeli.

On February the 22nd, 1903, General Manning's advance from Obbia began. The first point aimed at was Galkayn, an important well centre in the Mudug region. It was soon recognised, however, that the transport requirements had been much under-estimated, and after a short time the column came to a halt while supplies were pushed forward.

While General Manning was gradually concentrating at Galkayn, and preparing for the next advance, which was to be to Galadi, the Bohotle column made a few small raids, and established an advanced post at Dainot, 50 miles from Bohotle. About the same time 300 Yaos were sent from the northern to the southern column to reinforce General Manning, taking with them their own transport, and rations for two months.

Lack of transport so weakened the Obbia column that, although this had landed 2,300 strong, and had been reinforced by the 300 Yaos, the force which first marched into Galadi only numbered 800 men.

Information, which turned out to be fairly accurate, now indicated that the Mullah had gradually retired to somewhere in the neighbourhood of Wardair. It will show the difficulties under which the commander of the force and the intelligence laboured when I mention that General Manning, in certain official instructions, stated "Wardair is believed to be 70 or 80 miles north of Galadi." A glance at the map will show that Wardair is actually the same distance west of

Galadi: had it been north it would have been only about 15 miles from Bohotle.

During the enforced delay at Galadi, General Manning decided to send out a reconnaissance under Colonel Cobbe, V.C. Cobbe was to try and reach Wardair, establish a post there, and send back information. General Manning hoped that by the time he received this, he would be able to bring up more troops, and eventually to concentrate about 1,000 fighting men at Wardair, and force an action on the Mullah.

This reconnaissance, which after all reinforcements had joined it, numbered little over 500 men, left Galadi on April 10th. It passed through Gumburru, but on April 14th it went astray, and after a vain attempt to penetrate some very thick bush returned to Gumburru. On the 16th reconnoitring parties fell in with the enemy: the British and Boer mounted infantry, 50 strong, had a rather hot fight, and only got clear by straight shooting.

On April 17th occurred the Gumburru disaster. A company of Yaos reconnoitring reported the enemy to be advancing in large numbers, and that help would be required to enable it to get back to camp. Lieutenant-Colonel Plunkett was therefore sent out with reinforcements, including 50 of the 52nd Sikhs. With the reconnoitring company and the reinforcements, Plunkett's force numbered 230 men.

A second message was received just as Plunkett was starting, to say that the company had got back to within 1½ miles of the zeriba, and was not engaged. It can never exactly be known therefore why the action took place, but it is evident that Plunkett, on joining the reconnoitring party, moved towards the enemy, and when about three or four miles from the zeriba was fallen upon by the Somalis in overwhelming strength.

Of the total of 230 men only 44 Yaos escaped, and of that 44 only 9 remained unwounded. Much was talked at the time of the Dervish charge of the Somalis, but there now seems no doubt, after sifting the evidence from various sources, that the little square was simply overwhelmed by fire, though of course a charge may have taken place right at the end of the fight.

Before its annihilation, Plunkett's force, from all accounts, managed to inflict serious loss upon the Mullah. After the fight Cobbe was left severely alone, and was able to rejoin Manning without further loss.

A few days after Gumburru another small column had a very hard fight at Daratoleh. Major Gough of the Rifle Brigade, who there gained the V.C., struck out from Bohotle with instructions from Manning to co-operate with Cobbe towards Wardair. For the same eternal reason of want of water, he was compelled to reduce his force, and finally, only by mounting some of his infantry on ponies, and some on the Bikanir camels he had with him, was he able to bring about 200 men into action.

After four hours of severe fighting in thick bush, during which the dangerous expedient had to be resorted to of the various faces of the square making charges to relieve the pressure, the ammunition began to run short, and a retreat had to be ordered. The enemy pursued for three hours, but Gough's force, with a casualty list of about 25 per cent, made good its retreat to Bohotle, and even succeeded in carrying off 11 of the enemy's rifles while losing none of its own.

These episodes ended the third campaign. By order of the Government the Obbia communications were rolled up, and General Manning brought his whole force across to Bohotle. Most of the troops were sent down the line of communications to rest, and preparations were begun for a new campaign.

Meanwhile on May 31st, the Abyssinians in a raid, had managed to inflict considerable loss on the Mullah's spearmen. Whether for this reason or because the grazing at Wardair was becoming scarce the Mullah conceived the daring plan of moving right between the British forces into the Nogal Valley.

The paths of General Manning and the Mullah crossed, and a great opportunity was offered of crushing the latter, hampered as he was by vast herds of camels, and the families of his adherents, between the Obbia and the Bohotle forces. According to a despatch of General Manning's, written at the time, the possibility of the move was not credited, and unfortunately the opportunity was allowed to pass.

For the fourth and last campaign the whole force was largely increased, and the command taken over by Major-General Sir Charles Egerton. A most valuable addition was the arrival of several Indian silladar camel corps, which certainly saved the situation as far as the transport was concerned.

Two brigades were now formed, the first or African brigade under General Manning, and the second or Indian brigade under Colonel Fasken of the 52nd Sikhs. At the same time the mounted troops, that is, the various British and Indian mounted infantry, the Bikanir camel corps, and the Somali mounted infantry and levies were brigaded under the command of Colonel Kenna, V.C.

It was most necessary to bring the Mullah to a fight, but this time on terms a little more favourable to ourselves. He was well situated for our purpose where he was, in the Nogal. The fear was that he would retreat as before into the Haud, so in order to prevent him returning to his old haunts near Wardair, the Abyssinians were asked to try and occupy Galadi.

It was found however that they would take so long getting there that General Egerton decided to take the matter into his own hands, and the African brigade was sent straight across the Haud, a waterless march of 95 miles to Galadi, where a garrison was planted, and the brigade returned.

At the same time a naval demonstration was made off Obbia, and the Sultan of Obbia given arms and told to occupy Galkayu.

All this was done to convince the Mullah that the new expedition was to take the same lines as the old one, and these measures, or quite as likely his own inclination, caused him to stop in the Nogal Valley.

As usual the great difficulty was to bring the British forces into action at all. The nearest point from which even a start could be made into the Nogal was Kirrit, 150 miles from Berbera, while Bohotle, of equal or even more importance, was 200 miles. The transport had, so to speak, to start tired.

However, by the end of 1903 all was nearly ready. On December 19th Colonel Kenna made a reconnaissance into the Nogal, and discovered the enemy at Jidballi. A sharp action took place, and Kenna on his return reported that the Somalis seemed to have plenty of ammunition and to be full of fight. This reconnaissance had unlooked for and happy effect. The mounted troops having performed their task, of course turned about: this was interpreted by the Somalis into another victory for themselves, which made them the more eager to meet the main force three weeks later.

The final phase now opened. The Indian brigade marched on Jidballi *via* Kirrit and Eildab, while the Africans moved from Bohotle. On January the 9th, 1904, the two brigades met 12 miles west of Jidballi and bivouacked. Next morning at 5 o'clock, the whole, with the exception of the second line transport and a camp guard, moved towards the enemy.

The formation to start with was echelon from the centre, the 52nd Sikhs leading, which formation, I think, General Egerton intended to preserve. On arrival at Jidballi, the enemy were found concealed in a big nullah. Before the action the echelon degenerated into a square. The square moved forward until within about 800 yards from the nullah, when the Somalis sprang out of it and commenced the attack. The square then halted, and the bulk of the mounted troops began a wide turning movement against the enemy's right flank.

The ground was quite open, giving an excellent field of fire, and over it the Somalis advanced in skirmishing order, making what use they could of the little cover that existed. The first attack was made against the left front of the square, and in order to develop a greater volume of fire against it, the left face was thrown forward. On the failure of this attack, a second attempt was made against the front and right face.

From beginning to end the infantry fight lasted scarcely more than 20 minutes. The front face made use of independent, and the right face of volleys, but in both cases the fire was so heavy that the Somalis had no chance against it. The cover which existed was the only cover from view, in fact the scattered bushes which dotted the plain proved regular death traps to the enemy. An advance over 800 yards of open plain under such conditions was obviously impossible: the Somalis suffered heavily and completely broke up. The mounted troops took up the pursuit and carried it on for 18 miles, at the end of which both ammunition and horses were exhausted.

The Mullah's numbers at this fight were about 6,000 and his losses could not have been far short of 2,000. Our numbers engaged were about 2,000 and we lost 27 killed and 37 wounded.

There is one point I think not mentioned in the official history, and that is, that part of our Somali mounted infantry, in the middle of a successful action, commenced a flight which lasted for 50 miles.

The action of the Mullah in fighting at Jidballi is so little in accordance with his usual caution that it seems possible that he was forced into it by pressure from below.

This is not unusual in savage warfare, when the ardent spirits among the young men, attributing their successes rather to their own courage than to the skill of their leader, eventually force him into an action, which must lead to disaster.

The remainder of the campaign is not very interesting. The Mullah was driven out of the Nogal into the Northern Hand, at a time when this was most inconvenient to him. He consequently lost large numbers of sheep and cattle. Many of his people also starved. The African brigade blocked the passes into the Nogal while the Indian brigade tried to bring him to book in the Hand itself.

As usual, now that his followers were somewhat chastened in spirit, he managed to evade these attentions. The discomforts of hunger were not entirely confined to one side, a great many of our troops had to go on half rations, and some even of General Manning's staff suffered from scurvy. With the exception of a couple of subsidiary operations of no great importance, at Las Kerai and Illig, the campaign fizzled out to rather an unsatisfactory conclusion.

I have now finished the story of the various military operations in Somaliland, and it remains to suggest some lessons to be drawn from them.

One lesson we emphatically learnt was the futility of depending chiefly upon infantry to round up a mobile enemy, capable of enduring the most extreme privations, and possessing no villages to burn or crops to destroy. Even did infantry possess the necessary mobility, the transport question made matters hopeless.

With regard to this transport question, I think every one who took part in the campaign was agreed that it was hopeless to take offensive measures against the Mullah until a light railway should have been built from Berbera to Bohotle. It is in such campaigns and in such countries that the Brennan mono-rail might find its most useful field, but even a simple form of mono-rail, such as that found in Patiala State, for example, worked by bullocks or mules, would seem more satisfactory than the pack transport, so overworked as it was.

Where no railway or other artificial means of transport exists, a distinct lesson seems to be that supplies must be collected long beforehand, and a complete rest given to the transport intended for the various columns, before commencing actual operations.

Another lesson which suggests itself is that where you have an enemy who offers no definite objective, and whose forces in the field

are elusive and difficult to locate, a number of small mobile columns, independent of the lines of communication, is essential. It must not be thought that because the Mullah gained rather an undue number of successes his fighting strength was at all formidable. I think 1,000 good troops would have been safe under any ordinary circumstances.

We seemed rather inclined to rush into extremes. We either looked on the Somalis with great contempt, and got ourselves into trouble by going to meet them with quite insignificant forces, or we exaggerated their fighting capacity, and if anything rather overburdened ourselves with numbers.

So much for generalisations. I will now turn to the tactics and to the lessons to be drawn from them. To begin with, as I have said, the Somali tactics were invariable and always consisted of an attempt to envelop. It seemed to me that we rather allowed ourselves to be imposed on by these tactics. What was of course a very necessary formation on the march for the protection of the large amount of transport, and what was a necessary formation for the action of quite small bodies, seemed rather out of place at Jidballi for example.

The effect at that fight was that something like 400 rifles were not employed which might have been. There was but little hospital or first line transport to protect, and besides this duty, any but the smallest reserve was unnecessary.

I think, as I have said before, that General Egerton intended an echelon formation, but unfortunately it degenerated into the familiar old square. The lesson here seems to be, that while one must be prepared to adopt any formation which a savage war may render necessary, one must not allow oneself to be forced into a clumsy one without due reason.

To turn to a point of detail. It may be useful to notice a formation which was often adopted by the front and rear faces of the square on the march, particularly in the bush. This was a line of sections in single file. The heads of the sections were at such an interval that, on forming up, the men were extended to about two paces. On a halt being made, whether a long one, or simply the usual hourly halt, the sections formed up automatically on the left or right, and without word of command.

As a practical way of getting over rough ground, I much prefer this to fours, line, or company column. It is also much less tiring for the men. With very little practice, it was found that both alignment and formation could be preserved, even on a wide frontage, without the smallest difficulty.

It is perhaps going rather outside my subject, but I think this formation might be made much more use of, in at least the preliminary stages of an attack, and in an enclosed country in the later stages. Artillery officers claim that such a formation affords a good target for them. Well so it may on the range and with stationary targets, but it seems fair to suggest that a number of sections, led

by capable N.C.O.'s and taking every advantage of cover and of the accidents of the ground, and particularly never allowing themselves to be caught halted in the open in this formation, might afford little target at all.

It is noticeable that the Japanese made use of similar small formations in the preliminary stages of an attack. Sometimes they advanced in line of companies in fours, at other times in company column. Whatever formation was adopted, the great principle seems to be to break the front irregularly. An unbroken line is, obviously easier to hit than an irregular one.

The last point on tactics with which I wish to deal is the often discussed subject of cavalry and mounted infantry. There were no cavalry in Somaliland. It was just after South Africa, and things were perhaps a little bit out of perspective. Personally I think we missed cavalry very much, especially at Jidballi.

At that fight the mounted infantry did really excellent work, and everyone said at the time how beautifully they were handled, so perhaps it will sound rather ungracious to say that cavalry would have done better, especially in the pursuit.

At this stage of the operations, after the bad way the horses had to be treated with regard to water, it was hardly to be expected that the pursuit could be made at a gallop, but what happened was this. The mounted infantry cantered or trotted after the enemy. The latter, who as a people are quite remarkably hardy and wiry, could run nearly as fast and a great deal further. After a long struggle, the mounted infantryman would get within 50 or 30 yards of his intended victim, dismount, fire, probably miss, remount, and canter on again. By the time this ceremony had been gone through half a dozen times, the horse was done to a turn, while the Somali was quite undisturbed. If, however, the mounted infantryman tried to get right up to the man he was after, he soon found that the latter had plenty of sting left. The highest praise the enemy received for their undoubtedly plucky fight that day was from the mounted infantry who hunted them for 18 miles.

As to the question of suitable horses: the Somali ponies are very hardy. They are capable of making long marches on surprisingly little water. As a matter of habit they are only watered once a day, and are capable of going without water altogether for a day or two if necessary. They are however very small, and as the Somalis give them no grain, in order to make them more capable of enduring thirst, they are not capable of carrying great weights, and are apt to lose condition under the unaccustomed strain of continuous work.

Of imported ponies the Arabs did best, but the Indian country breeds did better than was expected, and the bulk of the British and Indian mounted infantry were mounted on them. All horses imported into Somaliland had to adapt themselves to quite strange conditions. In most places they could only be watered once a day, while on the march they often received the very small ration of only two gallons.

SKETCH MAP OF SOMALILAND

GULF OF ADEN

FRENCH

RAS HAFUN

THE NORTHERN BRITISH

THE NORTHERN HABITAT OF SOIL

NOGAL VALLEY

ABYSSINIAN

APPROXIMATE DISTANCES

From	To	Miles.
BERBERA	TO BARREDO	100
GAMBENO	TO SCHOTTE	80
OSSIA	TO GALKAYU	100
GALKAYU	TO GALACH	80
GALACH	TO GUMBURRU	80
BERBERA	TO HALIN	800
		"
		100 MILES.
		800 MILES.

Scale 1:600,000 or 1-Inch Inches to 40 Miles.

APPROXIMATE DISTANCES

BEBERA	TO	SABREO	100	MILES.
GARRERO	TO	SCHOTLE	50	"
OZBIA	TO	GALKAYU	150	"
GALKAYU	TO	GALADU	80	"
GALADU	TO	SUMBURU	80	"
SUMBURU	TO	HANIN	80	"
HANIN	TO		10	"
				200 MILES.

As mounted infantry were able to keep their horses in working if not in good condition, certainly cavalry would be able to do so. However, had cavalry been employed, it would have been best to have nursed them for the decisive battle.

In conclusion, I would mention that all the scouting was done by Somalis. The reasons were probably two: first that the ponies on which the scouts were mounted could actually go without water for a day or two, and so could go further afield; second that it was a country extremely easy to lose one's way in, and to lose one's way meant to die of thirst.

In spite of these undoubtedly good reasons, I think the practice was a very objectionable one. The Somalis were very unreliable, and it would have been much more satisfactory if the duty could have been done by some of the British and Indian mounted troops. The Somalis would of course have been necessary as guides, and selected light-weight riders among the British and Indians might have been mounted on Somali ponies.

It was of course a campaign of extraordinary difficulty, but I sometimes think we allowed ourselves to be overcome and perhaps a little paralysed by the difficulties.

INDIAN ARMY CASTES.

AHIRS.

BY MAJOR S. H. E. NICHOLAS, 95TH RUSSELL'S INFANTRY.

The Ahirs are divided into three tribes : the Jadubans, the Nandbans, and the Gwalbans. Whatever the connection may have been in bygone ages, the Jadubans have now nothing whatever to do with the Nandbans or Gwalbans ; all they have in common appears to be the name Ahir. We are only concerned with the Jadubans ; the other two tribes will be dismissed with a few words.

A good many officers, on hearing me speak of Ahirs, have said, "Oh ! yes, Gowlis, are they not ?" Gowli is a Dakhani corruption of the word Gwala, and the Ahir is certainly not a Gowli now, that is, as at present understood, and denies that he ever was ; his origin is admitted by authorities to be obscure, and this much only seems to be certain, namely, that the Ahirs are of great antiquity and, in these days, are accorded a rank considerably lower than that to which they appear to be entitled. Look up Ahir in Platts' dictionary, and you will find that it is "the name of a caste or tribe whose business it is to attend on cows, cowherd, milkman," and that it is derived from the Sanscrit word 'Abhira.' Other castes, however, also have this occupation, or something very similar assigned to them ; for instance, Gujar, Gwala or Goala, and Gadariya (2nd meaning, though the 1st meaning, shepherd, is the real calling of this caste). Mr. J. N. Bhattacharya, a recent writer on Caste, says that there are several cowherd castes, and that Goala is the common name of all. He treats of the Ahirs, the Gujars, the Goalas of the Lower Provinces (Bengal, Behar, and Orissa) and the cowherds of Southern India, each in a separate chapter and seems to be uncertain whether the Ahir is really a Goala or not, for he says, "Even the Ahirs and Gujars *are spoken of* generally as only sub-divisions of the Goala caste." In his chapter "General observations on the cowherds and shepherds" he says that although the cowherds are included among the upper nine of the Sudra castes, yet, *with the exception of the Ahirs*, they are regarded as somewhat unclean. Other writers whom I have consulted give the Ahir, Gujar, and Goala as separate castes.

Sir Henry Elliot, in his "Memoirs of the Races, North-Western Provinces of India," writes of Ahirs (Vol. I, pages 2 and 3), "Manu (x. 15) says that they are descended from a Brahman by an Ambastha woman, *i.e.*, one of the Baid or Physician tribe. In the Brahma Purana it is said that they are descended from a Kshatriya father and a woman of the Vaisya caste ; but on the question of the descent of the different tribes, the sacred books, as in many other

matters differ very much from each other, and none are to be implicitly trusted.

"The pastoral tribe of the Yadubansi stock was formerly of much greater consideration in India than it is at present. In the Ramayana and Mahabharat the Abhirs in the West are spoken of; and in the Puranic geography the country on the western coast of India, from Tapti to Devagarh, is called Abhira, or the region of cowherds. When the Kathis arrived in Gujerat, in the eighth century, they found the greater part of the country in the possession of the Ahirs. The name Asirgarh, which Ferishta and the 'Khazana Amira' say is derived from Asa Ahir, shows that the tribe was of some importance in the Dakhan also, and there is no doubt that we have trace of the name in the Abiria of Ptolemy, which he places above Patalene. Ahirs were also at one time Rajas of Nepal at the beginning of our era, and they are perhaps connected with the Pala, or shepherd dynasty, which ruled in Bengal from the ninth to the latter part of the eleventh century and which, if we may put trust in monumental inscriptions, were for some time the universal monarchs of India (As: Researches, Vol. IX, p. 438)." (Again on page 3). . . . "The Ahirs of these provinces all trace their origin to Mathura, or places a little to the west of it. There appear to be three grand divisions amongst them—the Nandbans, Jadubans, and the Gwalbans—which acknowledge no connexion except that of being Ahirs." (Page 180) "Ahir. . . . These are also, somewhat oddly, classed as Sudras. They rank high, however, as regards purity, and are probably of Brahman origin". . . . (page 825, concerning Ahirs of Agra) "said to have sprung from a Chattri father and a Vaisya mother. Tradition here gives Hariana as their original seat, but this most probably refers to a sub-division only. Their antiquity is great, 'Abhirs' finding mention in the 'Ramayan' and 'Mahabharat.' They are found in all parts of the district, and seem to have come mainly from Muttra." Elliot also mentions a tribe called Ahars, and on page 6 of Vol. I writes as follows: "Ahars say they are descended from Jadonbansi (Yadu) Rajputs; but the Ahirs say that they themselves are the real Jadobansi, being descended in a direct line from Krishna, and that Ahars are descended from the cowherds in the service of that illustrious *avatar* and that the inferiority of Ahars is fully proved by their eating fish and milking cows."

In the "Prem Sagar" we read of the family of Yadu that was so grievously oppressed. The Ahirs say that Nand, the large cattle-owner and apparently rich man, in whose house the mythical Krishna was brought up, was of their tribe; he was, according to the story, of the family of Yadu. The Ahirs deny that Nand was a Gwala: of course, he had to employ Gwalas, and many of them. The Nandbans Ahirs claim this Nand as their progenitor and the Jadubans Ahirs claim Krishna. I do not know whom the Gwalbans Ahirs claim; their tribal appellation leads one to suppose that they were derived from those who had to attend on the cows and do the dairy

work, but this is only a surmise of my own ; it may be wrong and, in any case, it would be unprofitable to pursue the question, for neither the Nandbans nor the Gwalbans are enlisted in regiments now. From personal experience I can say that the latter at least have hedged themselves round with many prejudices ; they cannot do this and cannot do that, and, in fact, cause one to think that they are people who are not sure of their social standing, and who, being nothing, try to make themselves out to be somewhat. I must say that those whom I have known were, barring their prejudices, of excellent character and also of fine physique, which was probably the reason why they were enlisted. I have only met one Ahir who called himself Nandbans and he seemed to be of the same kidney as the Gwalbans. For the rest of this paper I shall only speak of the Jadubans.

The Jadubans Ahir has no false pride. He knows that he is now considered, probably unjustly, to be of the lower classes, but does not worry himself about it. With the Jat and Gujar he stands at the top of the Sudras. He knows that he is the best farmer in India, and is proud of that, and he is also proud to serve as a sepoy. Occasionally a young man with a single name, say, Shiudatt, will, after enlistment, tack Singh on to it, thinking that Shiudatt is all very well for the farming lad but that, for the soldier, Shiudatt Singh sounds better. The appellation Singh appears to have been borne by some Ahirs from ancient days, but a very large number have no such tag to their names and are content with plain Shiudatt, Shiuchand, Mihrchan, Ghanshyam, Ranjit, and the like, or with a name combined with Ram or Lal. Ram, as the second part of a name, is extremely common among them.

All the Jadubans Ahirs, whom I have talked to, claim descent from Rajputs, in fact from Krishna himself. Their tribal appellation certainly seems, to my mind, to imply a Rajput origin. The Yadu family, which is described by Tod as "the most illustrious of all the tribes of Ind," seems to have kicked considerably over the social traces at one time or another, for, in the Handbook on Rajputs, page 178, we read that there are many spurious branches among the Jadons or Jadubansi Rajputs. It seems, therefore, that a good many Yadu Rajputs are, as Rajputs, not above suspicion, and the Jadubans Ahirs are likely enough the result of some infringement of Rajput law by this very illustrious family. Mr. Bhattacharya advances the proposition that Jadubans Rajputs are descended from Ahirs. I find in an old Gazetteer of the Rohtak district that the Ahirs there say that they were descended from a great-grandson of the Pirthi Raj—a Chauhan Rajput—who adopted the practice of "karao", or widow re-marriage; this, however, if true, must have been at about the end of the twelfth century and would only be an instance of a Rajput being the ancestor of some Ahirs, and very recent ones too. Ahirs were a race centuries before then.

Those who have read the "Prem Sagar" will recollect the wonderful transference of the Yadubansi by Krishna and Vishvavarma, in a single night, from Mathura to Dwarka, a city supposed to

have been built also in a single night by Vishvakarma on the sacred mountain Meru in the sea. Dwarka is, as is well known, a city on the sea coast at the most westerly point of the present Gujarat. Here mythology and surmise end as regards Ahirs, and we can get on to something more definite.

The Abhira, as we will call them for a bit, were mostly living about the fifth century in Abhira, now known as Gujarat, having gone there from Hindustan. How long they had been there is not known, though it seems that, at the latest, they must have been there at the time of Ptolemy, i.e., the first half of the second century. From their name, taking its accepted meaning, we must assume their wealth consisted in flocks and herds. While there, it seems, from a book which one of my non-commissioned officers has, that some parties of them made their way to other countries; for instance, a party worked its way down to Daulatabad in the Dakhan where one of them became raja, and a very large party worked up to a place called Turan, or Tullan, near the Hindu Khush mountains, lived there some years, and then came back to India with some Persian words in their vocabulary. Turania is, I believe, Afghan Turkistan. In the fifth and eighth centuries the Abhira are said to have been deprived of their country by Gujars and Kathis who appear to be responsible for the modern names Gujarat and Kathiawar. The Gujars are supposed by some to be a Scythian tribe called the Yuchi, who entered India from the north about the beginning of our era and who, after settling a bit in Kabul and Kashmir, travelled down the Indus, but Elliot says that they are a cross between Rajput and Ahir. Other Scythian tribes, the Jatii, Getae, and others, who are supposed by some to be the progenitors of the present Jat, had worked from the Oxus into Southern Afghanistan and by the Bolan Pass through the Sulaiman mountains into the Punjab, but others maintain that Jat is merely modern Hindi for Yadu or Jadu. Tod records a tradition which alleges that five Yadu princes were forced to associate with Jats and marry the daughters of cultivators, and thus fell from the rank of Rajput and assumed the designation Jat.

The habits and customs of Jadubans Ahirs, Jats, and Gujars are identical; there are only two points on which the three do not assimilate; they do not intermarry and will not eat together *from the same dish*, and if they use the same cup, water left in it by one would be thrown away and the cup be given a rub with earth before the other would use it. Any one of the three castes and also, I understand, Western Rajputs will eat food prepared by any of the others, but must have it served on a separate plate. Jadubans Ahirs, Jats, and Gujars will smoke together from the same *huqqa*. The Jadubans tribe is divided into many clans, and at marriage a man must marry in the tribe, but four clans are barred, viz., his own clan, the clan of his mother, and the clans of his two grandmothers; marriage into those clans is regarded as incestuous.

After losing Abhira, the Ahirs, as we will now call them, appear to have settled in Rewari and spread about into the adjacent

districts and into Patiala and Rajputana. The Jadubans Ahir is now found chiefly in the districts of Gurgaon, Rohtak, and Hissar, and also in Karnal, Patiala, Marwar, Mewar, Alwar, Nabha, Jhind, and along the western edge of the United Provinces. When a Jadubans Ahir talks of his country in its larger sense as outside his district, he means the country bounded by the northern boundaries of Rajputana and Patiala on the north; on the east by the Ganges from Dehra Dun to the Aligarh district, and thence by Agra along the eastern boundary of Gwalior to Tonk; on the south by the southern boundary of Rajputana as far as the Aravalli range, and on the west roughly by a line drawn north and south through the centre of Marwar. The Ahirs rose into prominence in the time of Aurangzeb, furnished a Governor or two and soldiers, and built forts.

The Jadubans Ahir is the agriculturist pre-eminent of India; the following extracts from the Gazetteers of Gurgaon and Rohtak, 1883-84, describe his capabilities:—

(Gurgaon Gazetteer, page 68) "At the head of the prevalent castes in this district I would place the Ahirs as the most industrious, prudent, and thrifty. Though much of the land occupied by them is of an inferior description and the incidence of the revenue in the Rewari tahsil, where most of the villages are owned by them, has for thirty years been very high as compared with the rest of the district, they have, by unremitting toil, compelled the soil to yield them a wonderful amount of produce, and have by prudent and thrifit kept themselves and their lands free from debt. Next to them come the Jats"

(Page 69) "The sandy soil of Rewari produces enough to keep the thrifty Ahirs in comfort, while the comparatively rich soil of the Firozpur Valley is heavily mortgaged to meet the extravagances of the thriftless Meos."

(Pages 70 and 71) "It is pleasant to turn from this state of things to that of the Ahirs in Rewari. With all their disadvantages their industry reduces the evils of a year of drought to a minimum, and their thrift supplies them with a means of tiding it over and reduces their expenditure for the time. Though the drought of last year was as bad with them as anywhere, they paid their revenue, and that without contracting a larger amount of debt than they are likely to clear off in a year or two of favourable harvest."

(Rohtak Gazetteer, page 66) "The Ahirs are perhaps superior even to the Jats in patient and skilful agriculture, and their well cultivation is famous. The area which they own in Rohtak averages only 1½ acres per head, but they cultivate lands for miles round Kosli in the Jhajjar and Rewari tahsils: even headmen of Ahir villages may be met working with their own hands as tenants elsewhere, and the Ahirs have paid revenue demands which even Jat estates could not have borne."

On service and at camps-of-exercise, Thomas Atkins and Jack sepoy are thrown much together, and generally seem to be able to arrive at a pretty good understanding. No doubt officers,

non-commissioned officers and men of the British service would like to increase this, so, for the benefit of those who do not know, I will give a few hints as to intercourse with the Ahir sepoy, who is ready to meet his British comrade more than half-way. The chief means of establishing good-will, the means that brings about the present good feeling, is of course the knowledge that both serve the same Sovereign; a willing, helping hand in a tough job and a bit of a joke even if Jack sepoy only dimly comprehends what Thomas Atkins is driving at, is another means. For the rest the Ahir sepoy would appreciate the offer of a cigarette or cheroot from Thomas's case and would like to return the compliment on a future occasion; he does not smoke a pipe, and just as the British soldier would not think of touching the sepoy's *hugqua* the sepoy would not, on any account, use a soldier's pipe. When we were at Singapore I found that all my men, Jadubans Ahirs, were buying travelling soap boxes and found, on enquiry, that they considered the boxes excellent cigarette cases.

The Ahir sepoy would appreciate and accept the offer of an orange or an apple, or, in fact, of any uncooked fruit, vegetable, or grain that had not touched the mouth, but though, if a soldier were to offer him a handful of gram, just taken from a sack, he could accept it, yet he could not accept a handful from the same man's havresack, for it might have been the uneaten portion of a handful put to the mouth and returned to the havresack. Also, though he could accept an unopened bottle of soda-water or lemonade, he could not accept a drink from a soldier's water-bottle, supposing that it was offered. He is not debarred from wine or strong drink, though he is most abstemious and chiefly a water or milk drinker. On a cold night in camp or on service, if the G. O. C. were to order a ration of rum all round, he would take it and be thankful, and if, in hospital, the M. O. were to order a glass of brandy, he would not object to the prescription. These being issued from a bottle or can, presumably not put to the mouth, are according to his ideas unpolluted. He may eat flesh, excepting the flesh of pigs or domestic fowls, or beef.

Like all inhabitants of Hindustan west of the Jumna, he is freer from prejudices as regards his eating, drinking, and cooking than the priest-ridden inhabitants of the East, where, in some places, the men are so fantastic in their ideas as to what constitutes pollution that they are a perfect nuisance if you happen to get any in a regiment by mistake. The Ahirs mess happily together and their feeding arrangements in a regiment present no difficulty whatever. Though they prefer a metal *pukkal* they will drink water from a *mashak* made of any prepared leather, but it must not have been used by any one of a different religion, that is, by any one not a Hindu or by Hindus of certain lower castes.

The "chulha" or cooking hearth is made inside the "chauka," a rectangular bit of ground about 4 feet by 5 feet, which is smoothed, smeared over with mud, and has an edging put round it. The "chauka" is not an absolute necessity for the Ahir; he can cook

without preparing it, but he likes to do things decently and prepares it unless very pressed for time and always if the ground is dusty or dirty. If a person of a different religion or Hindu of lower caste treads inside the "chauka" when food is there, the food becomes polluted ; so far as the Ahir is concerned, it does not matter if your shadow falls on it, as certain classes would have you believe. If there is no "chauka" the food becomes polluted if the "chulha" is touched. Should no food be in the "chauka" and you happen to tread there, a fresh smear will make it all right again. If a soldier was to walk over a "chauka" deliberately, it would probably be considered an intentional insult ; it is really best that soldiers avoid sepoy's cooking-places and, if soldiers have to pass them, they should be careful not to tread on them and remember that such an act may cause hungry seploys to lose the price of a meal and force them to cook all over again. The Ahir is not going to carry things too far, however, and, supposing that after dark, after a late return to camp, when it is necessary to allow fires and cooking up till late, the British officer going his rounds or the soldier who has lost his way, were accidentally to tread in one of the "chaukas" and not actually kick the food about, the Ahirs are not going to be such fools as to throw the food away, but would say to themselves, "Well, it was an accident, and it is night ; only we know about it ; we will just eat it up and say nothing." But if a Brahman or Rajput acquaintance were sitting by, whose opinion they cared about, they might feel compelled to play up to religious prejudice and treat the food as polluted. It has been truly said that, "Where there are no eyes there is no caste."

Government determined on the formation of Ahir companies in 1898, and four companies were ordered to be raised, two in my regiment, the 95th Russell's Infantry, then the 2nd Infantry Hyderabad Contingent, and two in the 98th Infantry, formerly the 5th Infantry, Hyderabad Contingent. The following extracts are from the Handbook on Jats, Gujars, and Ahirs, compiled by Major A. H. Bingley :—

(Page 14.) "The Gurgaon Ahirs make excellent soldiers, and differ but little, if at all, in appearance, physique, and customs, from their neighbours and rivals, the Jats."

(Page 71) "The Ahir of Gurgaon and of the adjacent districts differs but little, if at all, from his Jat neighbour, and is equally brave, industrious and orderly. It has been truly said of Jats and Gurgaon Ahirs that they are manly, without false pride ; independent without insolence ; reserved in manner but good-natured, light-hearted, and industrious. There are no more loyal subjects of His Majesty in India, and none who are more attached to such of their rulers who mingle freely among them." (Page 72) "As soldiers, Jats are perhaps a little wanting in initiative ; on the other hand, they are conscientious and painstaking workers, physically capable of great endurance, of bold and stubborn disposition, and, owing to their soldierly instincts, eminently adapted to the profession of arms. The same may be said of the Gujars and Ahirs of Gurgaon, Rohtak,

and the other neighbouring districts." (Page 73) "The Ahir is, as a rule, rather better educated than his Jat and Gujar neighbours."

After ten years' experience of them, I emphatically endorse the opinion that Ahirs are eminently fitted for the profession of arms. However hard the day's march, however tiring the manœuvres, they always keep their end up, and do not give in. They are, however, bad patients in hospital when sick, not on account of wounds or accidents, but on account of disease or ailment. They get very nervous if they feel ill inside and especially if they have no appetite. The Ahir is a good trencherman and, if he has no appetite, thinks he must be desperately ill.

If an Ahir falls out on the march, you may be sure, generally speaking, that he has been worked down to his last gasp and that he was probably a bit off colour when he started out. They are always cheerful, except when in hospital, and are the sort of people who habitually make the best of things. If matters are not as they would choose, they rest assured that they are anyhow as good as can be under the circumstances, that their Sahib would have made them more comfortable if he could; and they do not waste a moment of time or a pennyweight of energy in grumbling. They are reliable, steady, and of uniformly excellent character.

The educated ones are always keen to attend classes of instruction, and jump at opportunities of musketry, transport, physical training, or pioneer classes. They do not seem to cotton much to signalling, but you can generally find a few to learn, and the non-commissioned officers and scouts work hard to master semaphoring. One can always find two or three to learn bugling, though they do not care about it, because, in a mixed regiment, it means mixing with Muhammadan or low caste Hindu buglers; with a larger proportion of Ahirs or in an Ahir or Ahir and Jat battalion, with their own bugle or drum-major, there would be no difficulty about this. The Ahirs are the best scouts in my regiment and are keen on manly games. The educated ones are mostly good shots from the beginning, but it often takes a long time to teach the jungly one to shoot well—often a recruit's course and two annual courses. In my opinion the enlistment of Ahirs has proved a great success, and Government would do a good stroke of business in raising more companies of them. There are only four Ahir companies in the whole of the Indian Army. Excepting that it takes some of them rather a long time to learn to shoot, they give really good value for their pay. When you run over the names of the martial races of India and think of the Gurkha, Rajput, Sikh, Brahman, Dogra, Jat, Pathan, and Punjabi Muhammadan, do not forget the Jadubans Ahir.

SOUTHERN ARMY PRIZE ESSAY.

BY MAJOR C. D. FIELD, 86TH CARNATIC INFANTRY.

SUBJECT :—Aviation—Wireless Telegraphy—Telephony. What effect will they have on a modern battlefield, and a suitable role and organization for their use.

*Restat iter coelo ; Coelo tentabimus ire ;
Da Veniam coepio, Jupiter alte, meo—(Ovid).*

There remains a path through the heavens; through the heavens we will attempt to go. Great Jupiter grant pardon to my design.

The year 1909 is generally regarded as that in which aviation first became possible, though what novelists call "the conquest of the air" has been diligently sought by man since the days of Daedalus, whose words before attempting flight are quoted above. What has been achieved is the result of the perfecting of the internal combustion engine, and its application to the problems of locomotion, first on land, then on water, and now in the air. Since the first steps in the beginning of 1909, progress has been so rapid and convincing that no nation can now afford to neglect the possibilities for war of the new machines, though scepticism as to their value for purposes of commerce may still perhaps be justified.

It is proposed to treat the subject under the following headings:—

I.—A description and discussion of aviating apparatus.

1. The different types.
2. Rigid dirigibles.
3. Collapsibles including semi-rigid and non-rigid dirigibles.
4. Aeroplanes.
5. Wireless telegraphy on airships.
6. A comparison of airship types.
7. The requirements of airships for military purposes.
8. Some recorded achievements in the air.
9. The future.

II.—The rôle of airships * in war.

1. Their duties.
2. Reconnaissance.
3. Attack.
4. Defence.
5. Communication.

* In this Essay the word airship will be used to denote all types of air craft.

III.—The effect on the three arms.

1. Infantry.
2. Artillery.
3. Cavalry.
4. General.

IV.—The uses of wireless telegraphy.

V.—The uses of telephones.

VI.—Organization.

VII.—Conclusion.

I.—A DESCRIPTION AND DISCUSSION OF AVIATING APPARATUS.

1. The different types.

A short description of the apparatus available for aviation will give some idea of the possibilities and limitations of the invention, and the difficulties which have been, and remain to be overcome.

Airships come under two classes:—

1. Those heavier than air.
2. Those lighter than air.

In the first class are comprised the various types of aeroplanes such as monoplanes and biplanes. The second class consists of dirigible types, the rigid, the semi-rigid, and collapsible. These are balloons to which the addition of a motor gives the power to move in any direction in calm weather.

2. Rigid dirigibles.

The Zeppelin airships are familiar examples of the rigid dirigible. They consist of a stiff outer cover of aluminium alloy built over a frame. The cover is divided into partitions in which are as many as 17 separate balloons, and the air compensating chamber or ballonette. The frame is rigid, thus allowing of the attachment of the car and engines immediately to the metal cover, and this, by giving a direct drive, effects a great increase of speed and steadiness as compared with collapsible dirigibles, as there is no oscillation owing to attachment by hanging ropes. For military purposes the rigid Zeppelins are the most formidable ships yet constructed owing to their lifting power, steadiness, speed, and range.

Zeppelin VI has a speed of 30 to 40 miles an hour, and can cover 1,000 miles without descending, carrying 15 passengers, fuel, stores, and explosives. It requires 351,150 cubic feet of gas, which gives a lift of 11 tons. The motors are 350 H.-P., and it has risen to a height of 5,600 feet above sea-level. As two Zeppelins have now been destroyed by storms, it is obvious that airships of this type require protection from the elements, as the metal cover cannot be deflated, and presents an enormous surface to the wind.

Such protection can only be afforded by large sheds such as would not be portable with an army in the field, and it is therefore probable that this type of airship will only be able to act from a base,

A rigid dirigible which is designed to be an improved Zeppelin is now building at Barrow for our service. In non-rigids we have not yet got beyond the little Beta with 35 H.-P. engine.

3. Collapsibles, semi-rigid and non-rigid.

The semi-rigid, as the German Parseval, and the non-rigid, like the Gross and French Clement Bayard are built on the principle of a large gas bag shaped for driving through the air. The car and engines are attached by ropes, and hang some distance below the bag. This arrangement is necessary to prevent the sagging of the gas bag and has the disadvantage of permitting lateral oscillation. On the engine, which is some way below the gas bag, starting to work, a couple is set up, tending to drive the nose of the bag upwards, and this, with the oscillation of the car, greatly diminishes the speed and steadiness. In the semi-rigid it is sought to obviate these disadvantages by suspending the car and engine from a girder which is below the gas bag, and this by preventing sagging also allows the use of a larger bag.

The advantages of the non-rigid types are that they require no sheds and are safe from storms, as they can deflate. They are also portable more or less, according to the size, as they can be taken to pieces and packed in wagons. The gas plant required for filling the larger non-rigids would be too large to admit of portability, so it is likely that only the smaller type of collapsible would, unless railways were available, be able to accompany an army in the field at any distance from bases where the larger types could fill. The non-rigid airships have not the carrying power or range of the rigid ships, but they are being rapidly improved and may yet prove superior for military purposes.

The German Parseval III has motors of 200 H.-P. and a speed of $32\frac{1}{2}$ miles. The speed of the Gross is $33\frac{1}{2}$ miles an hour and it requires 270,000 cubic feet of gas.

A smaller type of non-rigid is the French Ville-de-Nancy. Its length is 180 feet and breadth 33 feet; the gas capacity is 180,000 cubic feet and speed about 25 miles an hour. This ship can carry six persons and 1,000 pounds of explosives.

4. Aeroplanes.

Turning now to the heavier than air machine of which the aeroplane is the sole type, it is seen that these depend on their motor for both lift and propulsion, and that should the motor fail, the machine must descend, though the descent to earth can be made safely. The radius of action of aeroplanes depends on their petrol-carrying capacity. The record flight is now 2 hours 51 minutes carrying two passengers and this represents about 150 miles at 50 miles an hour without descending.

5. Wireless telegraphy on airships.

As regards the use of wireless telegraphy from dirigibles depending on hydrogen for their lift, a danger exists from the electric spark of the wireless apparatus. This has now been overcome and in March 1910 wireless messages were first exchanged with earth stations in experiments made in Germany. In this year's manoeuvres in England continuous communication by wireless telegraphy was kept up from a dirigible.

In September 1910 wireless telegraphy messages were first sent from aeroplanes to earth stations, and the danger of the spark does not exist as with dirigibles.

6. A comparison of airship types.

In comparing aeroplanes with dirigibles it is seen from the above that the former excel in speed and portability, they can be easily repaired and protected from weather, they offer a small target, and the cost compares favourably with that of dirigibles. The disadvantages of aeroplanes are the inability to remain poised in the air and the, at present, small range for action and inadequate lifting power.

The aeroplane has a distinct advantage in high winds and rain. Owing to the bulk of dirigibles and the surface presented to the wind it cannot be supposed that these will ever be able to manoeuvre in anything approaching a high wind, but aeroplanes have already been manoeuvred in winds over 37 miles an hour, and each improvement in engines and fabric will increase their powers in this respect. Heavy rain may so increase the weight of the dirigible as to compel it to descend, as actually happened in September 1910, at the German manoeuvres. The airship was captured and its services lost to its side. The aeroplane is free from this defect and at the recent Bournemouth meeting several aeroplane races took place in the rain.

In all balloons depending on gas for lift it must be remembered that this lift is relative only to sea-level, and that an airship designed to rise with a given load to 6,000 feet would in a terrain of that altitude be unable to rise off the ground.

7. The requirements of airships for military purposes.

In the debate on the French War Budget, 1910, M. Clemenceau gave the following as the requirements of a military aeroplane :—

1. Power to carry two passengers.
2. Power to work in a strong wind.
3. The provision of two motors, each capable of doing all the work.
4. A power of rising to 1,000 metres above sea-level (this has long since been exceeded).
5. To ascend and descend on any ordinary level space.

The ordinary aeroplane is now capable of all this and more.

A new military dirigible is being constructed by the Rhine Steerable Airship Construction Company. It will receive a subsidy

from the German Ministry of War on condition that it possesses the following distinctive features:—

1. Power of rapid movement from place to place so as to give speedy information of movements of an enemy.
2. It must be able to throw down bombs at any fixed point with absolute security to itself.
3. The ship, which is to be built in three parts, must be so constructed that these may be taken apart at any time and used separately as airships.

The French War Minister is about to institute a competition for aeroplanes, the conditions being—

1. Power to travel 200 kilometres (124 miles) without landing.
2. Power to carry three passengers equipped for campaigning.
3. The machine must take to pieces and be portable.

Generally speaking it may be stated that an airship aims at fulfilling the following requirements, and from what has been said above it is clear the greater part of these have already been attained, though the science is yet in its infancy :—

1. A reliable power of flight and stability in strong winds, rain, and adverse weather.
2. Carrying capacity for suitable crew and armaments and wireless installation.
3. Power to remain poised for dropping explosives.
4. A high speed to carry information quickly, thus increasing its value, and a power of speed varying to slow.
5. Power of rapid ascent and descent.
6. Portability.
7. Facility of repair.
8. The target presented should be difficult.

8. Some recorded achievements in the air.

In June 1910, the French aviator Paulhan flew by aeroplane from London to Manchester, winning the Daily Mail prize of £10,000. The distance is 182 miles. This was covered with one stop for petrol, and two hours of the flight were by night. The speed at times exceeded 60 miles an hour.

Rolls recently flew by aeroplane from Dover to Calais and back, without alighting. The flight was at an altitude of 800 feet, the distance about 60 miles, and the time 70 minutes.

At the last Blackpool Meeting, Latham manœuvred by aeroplane in a gale of wind over 37 miles an hour in velocity.

The rigid Zeppelin dirigible has journeyed from Friederikshaven on Lake Constance past Leipzig. The ship was aloft 38 hours and covered over 900 miles.

In the German and French manœuvres, 1909, collapsibles remained aloft from 15 to 20 hours.

On August 12th, 1910, at Lanark, M. Drexel on an aeroplane reached an officially recorded height above the sea of 7,400 feet in under one hour.

On September 4th, 1910 at Deauville, Moraine aeroplaned to a height of 8,469 feet and on September 9th, 1910, M. Chavez on a monoplane reached a height of 8,790 feet at Issy-les-Moulineaux, beating all previous achievements.

Since then M. Chavez has crossed the Alps in his aeroplane.

9. *The future.*

Improvements in dirigibles are likely to be in the direction of perfecting aluminium alloys, which will allow of reduction of weight and increase of speed. The rigid dirigible will not improbably soon attain a speed of 40 miles an hour, and a range of 1,500 miles. A reserve of buoyancy by the use of compressed gases and an improved system of using planes will increase the range.

In aeroplanes improvements in metals used will give greater strength and lightness and consequent carrying and ranging power. The improvement and duplicating of the engine will increase the speed and power against strong winds. The speed of aeroplanes is being so quickly increased that the problem of securing variability of flight is now receiving attention. The area, angle, and curvature of planes differ greatly on high and low speed machines, and at a speed slightly below the minimum the aeroplane will not sustain flight at all, so the way to secure greater range of speed is clearly to build machines, the sustaining areas of which can be varied as a bird manœuvres with its wings. Every one has seen how swallows bend back their wings when changing from slow to swift flight. The aeroplane of the future is already foreshadowed as one with adjustable wing surfaces and large engine power. Little has yet been heard of the helicopter or vertical screw for giving direct lift and hovering power, but with increase in engine power and decrease in weight of construction materials a departure in this direction may not be impossible.

It is believed that aeroplanes will, as knowledge of air currents and conditions improve, be able to soar without the use of the motor for long periods, as do great birds.

The difficulty of navigation is one that has to be contended with on all airships. Hitherto long flights have for the most part been made by following well defined features such as rivers, railways, etc., but to do this the navigator must be familiar with the country. It is probable that this difficulty will shortly be overcome by the use of the gyro-compass, and the introduction of special sextants and anemometers. M. Lesseps recently found that it was possible to rise above a fog and steer by the sun.

It is certain also that the application of meteorology to aeronautics will give results hardly realised at present. This subject is receiving great attention on the continent. The study of air currents will produce results such as the study of ocean currents has given us, and already many air currents, such as the trade winds and breezes which set in from land and sea at certain periods, are familiar. It is certain that birds have an instinctive

knowledge and make use of air currents for their migratory journeys which could not otherwise be accomplished by them, for it is known that small insignificant birds are able by utilising the wind currents to cover, at almost incredible speed, distances which would otherwise be beyond their powers. Huebner, the German naturalist, has shown that birds never cross the ocean except on storm currents. In 1905 Mr. Cooke of the Biological Survey stated that the golden plover, a small bird, flies direct from Nova Scotia to the West Indies, 1,800 miles, and thence to Eastern America another 600 miles. An English authority found that the dotterel, which breeds in the Arctic regions and winters in Africa, makes its flight of 2,000 miles in 10 to 12 hours or at the rate of nearly 200 miles an hour. Incredible as this may seem, it is supported by a German naturalist, who affirms that the curlew flies by the aid of strong wind currents, at the rate of four miles a minute, about one-third of which is due to the bird itself. These are no fancy statements, but the results of long years of careful observation, and such facts present amazing possibilities for aviation in the future.

Wireless telegraphy will admit of the exchange of information as to favourable and adverse winds, and certainty and security of aerial travel will result.

II.—THE RÔLE OF AIRSHIPS IN WAR.

1. *Their duties.*

The duties of air craft in their order of relative importance will probably be as follows:—

1. Reconnaissance.
2. Attack.
3. Defence against hostile air craft.
4. Communication.

2. *Reconnaissance.*

It seems that reconnaissance must ever be the first duty of an air machine. No other arm can do this duty with anything approaching the same completeness, and certain forms of information can be collected not accessible to troops acting on earth. Experiments have shown that single men are visible from an altitude of 2,000 feet, groups from 3,000 feet, and movements of bodies have been accurately observed and telephotoed at 4,000 feet. The radius of vision from an airship at 4,000 feet is about 30 miles. For strategical reconnaissance only those airships of great carrying capacity and range will be of use, and this duty would therefore fall to the rigids and any larger types of collapsible. As these must operate from their bases and in suitable weather, the position of the base must be selected with a view to the direction in which strategical reconnaissance would be most likely. In this connection the

significance of the German airship bases at Metz, Cologne, and Mannheim is interesting; a training base also exists in Berlin. For tactical reconnaissance the smaller types of collapsibles, and aeroplanes are suited. The presence of both these with an army will be necessary, as the aeroplane can act in weather in which the dirigible cannot ascend, as was demonstrated in the French manœuvres in September 1910. The value of small dirigibles for this work in suitable weather has been repeatedly shown in recent German and French manœuvres and the most reliable and accurate reports obtained, but that the possibility of failure in the matter of reconnaissance exists was shown at the German manœuvres in September 1910. A rainstorm compelled the dirigible on one side to descend, and it was captured by the enemy. On the other side a dirigible was deceived by a dummy position with trees to represent guns, and sent in misleading reports with disastrous results. This dirigible was forced to keep high by anti-airship artillery.

In the French manœuvres, 1910, bad weather was the rule, with high winds, and while dirigibles were confined to their sheds, aeroplanes were used for reconnaissance with marked success. A Berlin paper now reports that French experience has decided Germany to cease buying Zeppelins owing to their expense, unwieldiness, and liability to accident, and that a corps of aeroplaniasts will be trained; but this if true can apply to tactical reconnaissance only, as the aeroplane cannot as yet compete with the large dirigible for purposes of strategical reconnaissance and attack. Fogs, cloudy weather, and bright moonlight nights would seem to offer conditions when airships might approach almost unseen, as they are very difficult to distinguish at such times, and a rapid reconnaissance might be effected before discovery took place. A valuable means of personal reconnaissance is also now at the disposal of commanders, and General Villoud in Algeria lately availed himself of it by carrying out a personal reconnaissance when seated as a passenger in an aeroplane.

For topographical reconnaissance the airship should be invaluable, as plan maps can be taken with the telephoto lens, and one can imagine how the presence of such a machine would facilitate operations like those for the relief of Ladysmith, where there was uncertainty as to ground and no reliable maps were to hand. Such information as can be conveyed in written reports and sent by wireless telegraphy both from airships and cavalry will now be rapidly at the disposal of a commander, and this will greatly increase its value. Plans and maps will also now be rapidly available, as airships will bring them in quicker than cavalry could hope to do. In protective reconnaissance the airship will rapidly locate and give warning of all hostile bodies, and at night during darkness it may descend close to earth and catch the sound of any hostile movements. Dirigibles could remain anchored by night over any locality where advance or attack by an enemy was apprehended and give timely warning by wireless telegraphy.

3. Attack.

The power of airships for attack will increase with every advance in material and applied scientific knowledge. This power will consist chiefly in dropping explosives, and as the nature, size, and number of these depends on the lifting capacity of the airship, only the larger types will be suitable for this purpose, and that only within the radius of action from their bases. If, however, railways are available for the transport of the larger collapsibles and their inflating apparatus, minor attacks by these will also have to be reckoned with. As regards the accuracy of aim, the French after many experiments conclude that 50 per cent of projectiles dropped from a height of 4,500 feet can be placed in a 25 yards square. This form of attack is open to all airships that can remain poised. Experiments show that similar attacks by dropping explosives from aeroplanes are feasible, but the accuracy of aim would obviously be far less, in fact at present the aeroplane has to descend within rifle range to attack, though even with this disadvantage it is probable that with the speed obtainable the moral effect of such action at a critical moment might render it well worth the risk. A sudden rush of aeroplanes dropping bombs almost before their presence is known, and gone at the speed of the swallow, might turn the course of a battle. Up to the present, however, it cannot be doubted that dirigibles are superior to aeroplanes for offence, and it is worthy of notice that Germany, while not neglecting the aeroplane, is perfecting her airships in the direction of the larger types of collapsible, though as stated above the French success with aeroplanes is drawing great attention in the former country. The large collapsible will certainly have a big range in the continent where railways are numerous, and it may be that in taking this line, Germany designs to use her airships more particularly for purposes of attack. France on the other hand pins her faith almost entirely to aeroplanes, which are more suited to tactical reconnaissance and communication by carrying despatches. It is also not improbable that there is some idea that the aeroplane may yet prove the assailant of the dirigible, as it can easily rise higher and has the advantage in speed. The attack by airship on a dark night is not likely to be a profitable proceeding, as there would be difficulty in distinguishing the targets. The power of search-lights is greater on a dark night, and it would be easier to pick up a hostile airship. On bright moonlight nights the case would be different : it is particularly difficult to distinguish an airship aloft in moonlight, especially if there are any clouds, whereas the outline of objects such as would form marks can be easily distinguished from above on a moonlight night.

4. Defence.

The attack by airships will be sudden, and owing to their speed will begin almost as soon as they are sighted, and all localities where attack is to be feared will therefore require protecting airships constantly cruising aloft ready to engage at once, as there will be no

time for preparation. The swiftly moving targets will be most difficult to hit. Field artillery cannot elevate to fire on airships at an altitude of 4,000 feet, and the howitzer, though possessing the power to elevate, will be too cumbersome for such a form of shooting when airships are moving swiftly. Experiments have lately been made by howitzers against dummy dirigibles. The dummy was raised on four kites towed by a destroyer, and, at distances up to 5 miles, 85 per cent of hits were made, which seems to show that these may be effective against airships poised or moving slowly, but such experiments are no criterion when the target can only move in one direction. Should a dirigible come within rifle and artillery range, it will suffer little damage by loss of gas from the holes made by shrapnel or rifle fire, though these will be effective against the personnel. The only guns so far produced capable of meeting this form of attack are the German anti-airship guns and projectiles with a smoke tracer luminous at night. The guns are 7·5 c., vertical range 6,800 yards, and 10·5 c., vertical range 12,400 yards, and any hit by these would explode a dirigible rising by hydrogen, causing the death of all on board. The difficulty is the target, but such a weapon would compel reconnaissance from such a distance as would greatly affect its reliability. The only real defence against airships seems to be by other airships. These will probably carry compressed air guns, and fire projectiles with a tracer. In such combats the victory will be to the swift, and each ship will endeavour to rise above its opponent to drop bombs on it. The superior speed and power to rise of the aeroplane will give it a great advantage in such combats, as will also its small target as compared with that of the dirigible. But the aeroplane will require to finish the combat before its petrol supply gives out.

5. *Communication.*

Airships will be of great value in bringing in information and keeping up communication where wireless telegraphy is not in use. Ordinarily, however, wireless telegraphy will fulfil all requirements, and as airships can be more profitably used in reconnaissance, attack, and defence, it does not seem probable that they will be used to any great extent for communication, except for carrying important despatches or special messengers, or allowing two commanders to meet and confer. Where, owing to distance, high stations are necessary for wireless telegraphy, it is likely that dirigibles with wireless plant will take the place of these, as they can remain at heights necessary for the purpose.

III.—THE EFFECT ON THE THREE ARMS.

(a) *Infantry.*—Infantry is the principal arm, and its formations have hitherto been decided by the effect of artillery and rifle fire, for within ranges where these are effective any close formations are impossible. Infantry in mass will now also offer a target for aerial attack, and as such attack will always be sudden, extreme vigilance

will be necessary wherever it may be possible. Formations will have to be adopted which will allow of a rapid change to formations such as would be an unsuitable target for airship attack. The presence of hostile airships will thus, by compelling very early extension, increase the difficulty of control on the field of battle. Where massing is imperative, as in the final stages of the attack before the assault, a target will be offered for hostile aerial attack, and it would therefore seem that if such massing is to succeed in its object the support of airships above will be necessary to deal with hostile airships. These supporting airships would of course be at a height where they would be safe from destruction by artillery supporting the infantry attack. As pointed out above, a rush of aeroplanes at a great speed will offer almost no target, and throwing bombs on a mass about to assault might be a form of counter-attack worth the risk, especially if well supported below. Such a possibility could only be provided against by airships supporting the attacking troops, and well on the alert against any such attempt. The moral effect of such support would be immense, and the airships would be ready to assist the pursuit.

Cover from view will now be of greater importance to infantry. It may be taken as certain that the indirect fire of artillery will greatly gain in effect by being observed and directed from airships, and this will induce infantry to seek ground where they are less likely to come under aerial observation, so features such as woods, ravines, etc., offering concealment will have increased tactical importance. Where aerial reconnaissance is active, it does not seem possible that the movement of large bodies of infantry within striking distance of an enemy will escape observation from airships, and therefore any form of concentration against particular points will have to take place on a dark night, followed by speedy action at dawn before discovery becomes possible.

(b) *Artillery.*—All artillery at present used in the field is to all intents and purposes helpless to prevent attack or close reconnaissance by an airship, the howitzer being least so. This fact will necessitate the introduction of a new species of artillery for anti-airship purposes in the field, and an additional ammunition supply. It will be for experts to determine the proportion in which these guns will be necessary, and how they are to be organized, and these questions will be largely determined by consideration of the targets likely to attract aerial attack, and the capacity of the guns to keep airships at a safe distance.

Unless such a gun is produced, or unless a protecting airship is constantly cruising above, all ordinary formations of even small bodies of artillery on the move will invite aerial attack. The accumulation of horses and wagons of a body of the size of a brigade when in action would be thrown into confusion by a few bombs even fairly well aimed. This seems to point to the necessity for dispersion and the consequent increased difficulty of control. Attempts will be made to destroy ammunition columns by airships, and anti-airship artillery will have to be with these to protect them.

The concealment of guns, and indirect fire positions, will continue to be of value on the chance of eluding observation from above, and in any case the time taken in discovery will be a gain; but if reconnaissance by airship during battle is active, the artillery positions on both sides will soon be known and the direction of fire will be helped by observation from above. This being so it will be a matter for consideration whether artillery will have more to lose by remaining in positions under the accurate fire which will result, or to gain by moving more frequently as opportunity offers.

(c) *Cavalry*.—Cavalry will receive a powerful auxiliary for both strategical and tactical reconnaissance, and the result will be far more accurate and detailed information. Airships can never replace cavalry for reconnaissance entirely, as there are details for report which can only be investigated by troops working below. The necessary resistance to the enemy's cavalry can also only be provided by the use of opposing cavalry. In all reconnaissance, airships will be able to discover main concentrations and moves of the enemy, and the result will be a great economising of cavalry in this direction, with a consequent saving of this arm for shock action and pursuit. The cavalry raid as a feature of war is likely to be replaced by the airship raid, which can be made more suddenly and effectively and without the detachment of forces when they may be required for battle, for the speed of the airship will allow of its return being calculated to a nicety. The general effect of the airship will be to supplement and economise cavalry both in reconnaissance and pursuit, where keeping touch with a retreating enemy will be the airship's special rôle. Cavalry acting in masses accompanied by horse artillery will be subject to aerial attack and will need a mobile anti-airship gun to protect it.

(d) *General*.—It may be taken for granted that encounter battles, except between small forces unaccompanied by airships, will be unlikely in the future, as the conditions under which these occur will be absent owing to the distance to which airships can carry reconnaissance. For the same reason armies will be far more cognisant of each other's moves, and touch once gained will not be easily lost. When two opposing forces meet to try conclusions, the first step will be tactical reconnaissance by airship above and cavalry below, the latter largely directed by the former. Above as below, every endeavour will be made to prevent the other side gaining information and this will lead to aerial fighting. A great actual and moral superiority will rest with the side which comes best out of this, for the result will be to throw the other side practically on the defensive owing to the paucity of their information. It would then appear that that side which has the superior air fleet, and can command the field above will have such an advantage as will go far to supplement inferior forces below. The advantage of being able to concentrate secretly against decisive points, and of being able to confine the fog of war to the other side may be incalculable.

In all wars much time is necessarily spent on reconnaissance and it is a question whether the acquisition of information will not,

be greatly accelerated by using airships for the purpose, and whether there will not therefore be a general shortening of modern war by the time so saved.

The possession of airships will further confirm the superiority of civilised troops acting against savages and will give the means of opening up countries hitherto with difficulty accessible.

IV.—THE RÔLE OF WIRELESS TELEGRAPHY.

This is now working regularly between the British Isles and America, and would therefore be of use over any probable theatre of war. Wireless telegraphy has certain important advantages over the line telegraph for military work :—

1. There is no line to be broken by storms or cut by an enemy.
2. There is a great reduction of line staff and material.
3. Communications with fleets at sea and airships becomes possible.
4. The apparatus is portable and can be carried by cavalry in the field.

Wireless telegraphy will probably supersede the present field telegraph, and line telegraphs will only be used where they are permanent. The advantage of wireless telegraphy for these operations of war which depend for their success on certainty of communication is obvious. In sieges the complete isolation of the besieged will no longer be possible, and they will be able to communicate and concert plans with a relieving force.

V.—THE RÔLE OF THE TELEPHONE.

The use of the telephone effects a saving in time over visual signalling and there is less liability to interruption from weather. The line, however, is a great drawback, as it is liable to be broken if not laid over suitable ground.

The telephone with wire is of great use at present to maintain communication between infantry and its supporting artillery. Within the brigade of artillery and infantry it is of great value for the direction of lesser units by brigade commanders, and for communication with observation parties. The extension of its use to units within the battalion (except for outposts) is discounted by the confusion which would arise from multiplication of lines.

The telephone is probably of less use to cavalry than the other arms, as the necessity for constantly laying and winding up the line when rapidity is required hampers their movements. On stationary duties as outposts or when an army is halted the telephone is of great value, as the line is laid in less haste and interruption is less frequent. For this reason the telephone is probably of even greater value in defence than in attack. The march of science will soon no doubt present us with the perfected wireless telephone, an instrument the use of which will be advantageously extended to companies and similar small units, thereby displacing the present tedious system of heliograph and flag.

VI.—ORGANIZATION.

The organizations of units for working aviation, wireless telegraphy, and telephony, will depend on the uses to which it is intended to put those inventions, and those have been stated above. The value of an airship is greatly increased by wireless telegraphy and telephony, and it would therefore seem that any organization should include a personnel technically trained in the use of all three. Military knowledge will naturally be a *sine qua non*, but this can be supplied by officers detailed to accompany the airships, in addition to the technical staff. Careful and prolonged training will be required, and the importance of a large reserve will need to be insisted on, for though airships can be rapidly replaced this will not be the case with the personnel.

In suggesting an organization it is clear that the technical personnel will require a training different to and more prolonged than the military personnel, for in the latter case officers will only be carrying out from a different point of view duties already familiar to them. It will be sufficient for military officers to receive instruction in any changes in their method of work which the new inventions may necessitate.

It would then seem that whereas a permanent organization would be necessary for the technical personnel, it would be sufficient to train selected officers in aerial work, and arrange for them to receive refresher courses. A satisfactory organization for the technical personnel would be that of aerial companies, each company to be complete in itself and capable of division into four or more sections. The company should include the necessary reserve of men and material for service, and airships might be allotted in the proportion of one dirigible to the company and one aeroplane to each section. Work could then be carried on in almost any weather. Trained military officers could ascend whenever required or be attached for any time to the aerial companies.

The provision of schools of training and schools of research must not be overlooked, for only by such means is it possible to keep abreast of other nations in scientific invention and the application of science to war. Having regard to the difficulties of aerial navigation it might be necessary to establish a pilot service and training school for the examination of problems connected with aeronautics.

In England at present a large rigid dirigible is being constructed for naval use, while to the Army the small dirigibles and aeroplanes have been allotted. Any such division seems a mistake, for the technical aerial work is the same over land and sea. For naval work, however, it may be that the special knowledge of naval officers might be required, and the above-mentioned organization would meet this by the training of naval officers for the aerial naval work of reconnaissance, etc., in the same way as suggested for military officers. Two aerial corps would produce two schools of thought and there would not be the same unity of aim or direction of work,

VII.—CONCLUSION.

It may be generally concluded that a new arm has now to be reckoned with in war, and that every year the efficiency and importance of the airship will increase. One type will no doubt eventually prevail, and that the heavier than air machine. The fog of war will to a great extent disappear, and wars will be of shorter duration, as decisive results will be more speedily obtained. The total loss of life will probably be less, as mortality is greater from disease than from any other cause in war, and disease will have less time to make itself felt. The nation that is strong and ready in the air will commence war by establishing a command over strategical localities, and will obtain at the outset an ascendancy which will allow the other side no chance of making up for deficient preparation. At present the mechanical genius of the French has placed them first in aeronautics, while the faculty for organization and timely preparation which distinguish the Germans has produced for them an air fleet far beyond anything we possess. Aviation however requires certain personal characteristics which our own race possesses in a degree second to none, and it cannot be doubted that we shall shortly be equipped in this respect as befits our position among the nations of the world.

DAEDALUS.

YOUTH.

BY "ELISHA."

Students of foreign military periodicals will have noticed the efforts recently made by several of the great powers to accelerate promotion, with a view to ensuring that officers shall not, in the future, rise to positions of influence only when they are too old to benefit the State to the full, as has so often been the case in the past.

The Indian Army promotion question is a peculiar one, owing to the fixed periods for promotion, and the consequent supersession of a large number of officers whenever one is specially promoted. This is particularly the case with regard to the command of Indian regiments, where the promotion of majors to substantive lieut.-colonel has given rise to wholesale supersessions; and, in spite of Mr. Haldane's recent explanation that in reality, everyone had superseded everyone else, and that the net result is therefore that all are better off, to consequent discontent. As things go at present, it seems that, unless in exceptional cases, no officer is likely to be given command of a regiment until he has 25 years' service, so as to minimise this cause of discontent; but the result of any such rule, even if an unwritten one, is not likely to make for the fighting efficiency of the army. It almost necessarily means the bringing in of officers from outside to the command of Indian regiments a measure which, though sometimes necessary, is beyond doubt exceedingly unpopular with the Indian ranks. It is believed that the suggestions put forward below, by eliminating the incapable and the *fainéants* would result in the almost entire elimination of the necessity for such promotions.

In the Indian cavalry, the average age of officers on attaining command is over 46, the infantry is better off in this respect at present, but any such rule as the 25-year one just mentioned will bring the average age of officers attaining command of an infantry regiment up to at least 45.

It is, of course, easy to point to Napoleon and his marshals, practically all of whom rose to the highest command before they were 40: or to Wellington and his generals in the Peninsula. The circumstances in each case were exceptional; still, the fact remains that the British Army reached its highest reputation—at any rate in the opinion of foreign critics—under the young peninsular generals.

Everyone will admit that a good young leader is better than a good old one—the difficulty is to ensure the promotion of the best men while they *are* still young. It will probably be generally admitted that the ideal maximum age at which an officer should reach command of a regiment is 40, and of a brigade 45, the

difficulty is, how to set about attaining this ideal. It is objected that the only way to select the real leader of men is by war, when the best men will come to the front. So they will, but at what cost of initial failure will the incompetent be shown in their true colours first? Our army is a small one, and is theoretically trained to meet a European enemy—we cannot afford to risk initial failures, relying on the national capacity for "muddling through," in a serious war. Also as our army is small, it must always try to live up to Danton's three requisites for success—"If nous faut de l'audace, et encore de l'audace, et toujours de l'audace." If a man is a fool at 40, he would remain a fool if he were to live to the age of Methuselah; at 40 a good man has learnt that boldness does not mean foolhardiness, but is still young enough to err on the side of boldness rather than on that of caution—a most desirable trait in a commander, at any rate in our small army; and, if a man of 40 is not a good man, no army has any use for him, least of all our own.

The prejudice against military officers' mental capacity, as exemplified by the saying about "the fool of the family," dies hard; but, in India, putting aside members of the I.C.S., there are a certain number of men who started in life as military officers (and therefore, at any rate until lately, in the opinion of the man in the street, as fools by hypothesis) who attain to high office early in life. The Agents to the Governor-General in Baluchistan and the N.-W. F. Province, for instance, rank above all military officers, except the Commander-in-Chief, the G. O's C. Northern and Southern armies, and the Chief of the General Staff. It is, at present, practically impossible that any military officer should reach a position even approximately equivalent, at the age at which their position was reached by the present incumbents of the posts mentioned, but it ought not to be so.

The late alteration in the scale of pensions for officers of the Indian Army, which, it was hoped, would alleviate the block in promotion by inducing more officers to retire, has probably, if it has had any effect at all, produced one the exact opposite of what was expected. When an officer had to wait four years for an increased pension, he often had to ask himself "whether it was good enough;" now, when he has only to wait a single year to secure an appreciable increase of pension, officers who would otherwise retire are tempted to hang on, consoling themselves with the thought that they will be able to put in a fair percentage of the extra time on leave, with the resource, always ready to hand, of taking a year's furlough, extensible to two years, "pending retirement." The latter privilege might now well be abolished, with the exception to be set forth on page 93.

The general thesis is, that men should be promoted to positions of responsibility while they are young, not because they are old. Mistakes must be made, under any system, but who shall assert that they are likely to be more numerous under a system that aims at promoting the best men while still young, than they have been in

the past, under the present system ? To assert the desirability of reducing the age of commanders is easy, but it is not so easy to find a means of bringing this about, without which such an assertion is valueless. The writer believes, however, that the difficulty can be solved, by a system analogous to that of the "reserve of officers :" and that without extra expense—indeed, with an actual saving to the State.

It is generally admitted that the British officers of the Indian Army are too numerous for peace requirements, though, if anything, still short of our needs for war. In our efforts to improve the status and increase the responsibility of the Indian officer, we are faced by the difficulty of accustoming him to think and act for himself, owing to the number of British officers in Indian regiments, for whom work must be found during peace. Perhaps in no army so much as in the Indian Army a considerable number of officers take up the army as a means of livelihood, not because they have a real bent for the profession of arms. However able intellectually such officers may be, they are really "King's bad bargains" so long as they retain this frame of mind. At 40 a man will have thoroughly made up his mind whether he really has a bent for military life or not ; and is not too old to take up a new profession, if backed by a small pension, which will enable him to take employment which he could not afford to accept if it were to constitute the whole of his resources. It has also lately been authoritatively stated that junior officers are too much inclined to take leave home, and frequent absences from India on this account are to be officially discouraged ; so that the suggestions now made will not be objectionable on that score.

It is suggested that officers, on completing 20 years' service, should be allowed to take two years' furlough on a consolidated scale of pay of approximately half their actual pay and allowances, which would, at 20 years' service, average about Rs. 900 a month—or say, £365 a year : Government giving free passages home and out again for themselves and their families, either by troopship or by contract with one of the cheaper lines of passenger steamers, the Ellerman line for instance. During their absence, they would not be replaced in their regiments, and they would be permitted to take up any employment they might fancy, while at home ; though of course remaining subject to recall in case of emergency : on the understanding that they either returned, or resigned their commissions, at the end of two years. A fair percentage of the officers who availed themselves of this special leave would, it is believed, find more congenial employment during their two years' absence from India. Those who returned would remain a full year with their regiments, on the expiry of which any who so desired would be allowed to proceed to any destination they chose, Government paying their passage, on 5 years' service in the "reserve of officers," on reserve pay of £500 a year : the cost of their passage being recovered by Government in 12 monthly instalments from their first year's pay.

During this period of 5 years, these officers would be liable to recall in the event of necessity, but their places would not be filled in their regiments until the 5 years had expired, at which date, when they would have completed 28 years' service, they would be finally retired on the pension, £500, which they would have earned by that length of service. It would probably avoid difficulties as to rank, in case of the reserve being called up, if these officers remained in the rank of major while on the reserve list, being granted the rank of lieut.-colonel on final retirement.

A number of advantages are claimed for this suggestion :—

- (i) A reasonable number of officers who had mistaken their vocation would find other employment and make room for younger men.
- (ii) Those who returned after the initial two years' special leave, would regain complete touch with the Indian Army in their year of duty with their regiments.
- (iii) If they then desired to avail themselves of the period of reserve employment, they would at once allow younger men to hold practically permanent positions of increased responsibility without any extra expense to the State: and would themselves be available to fill the gaps in the fighting line while still of an age to be of real value in war.
- (iv) Officers, redundant in peace time, would be absorbed in this way, enabling Indian officers to be given increased responsibility and a consequently improved status.
- (v) Expense would actually be saved to the State. During the initial two years' special leave, the ordinary furlough pay of officers of 20 years' service would be £450 per annum : so that pay at £365 a year, with passage home and out, would result in no loss to Government, probably in a small saving in expenditure; while, as the officers would not be replaced in their regiments, no expense on that score would be incurred. The officers absent on the reserve list would give an actual saving of money. After completing 24 years' service, the furlough pay of an officer of the Indian Army is £600 ; so that 5 years' pay at £500 would be less, by £450, than furlough pay for the same period.
- (vi) The officers absent on two years' special leave, and in the "reserve," would be reckoned as on furlough ; this would automatically reduce the number of vacancies for leave out of India to the junior ranks. Excluding officers on special leave and in the reserve, the leave vacancies out of India might well be fixed at three per annum, which would give the remaining officers leave home about once in four years.
- (vii) A number of valuable officers are always kept locked up at depôts, bases, etc., when their regiments are ordered

on service. These would be set free by the return of the reserve officers, who would naturally be more useful in such employment than actually at the front.

(viii) To two classes of officers the scheme would probably be an attractive one—to the incapable, who would consider himself "well out of it" on these terms; and to the real soldier who had very likely, through no fault of his own, been passed in the race for promotion, and who was prepared to accept cheerfully the necessity for making way for younger men, if he could see his way to do so on a reasonable competence. No reservist ever expects to be called up, though he thinks it not improbable that his neighbour will be—witness the outcry by the owners of subsidised horses during the South African War: and the scheme would look, at first sight, like earning the 28 years' pension with only 23 years' service.

It may be objected that, if the number of officers on special leave or on the reserve list were large, a serious shortage of officers might occur on a sudden emergency, especially if such an emergency only entailed a "partial mobilization," and was not sufficiently serious to justify a wholesale recall of officers to the colours. It is believed that such an objection can be met without difficulty. Gloss it over as we may, it is an indisputable fact that the fighting material of the Indian Army is not of equal value throughout: certain regiments would be used for internal garrison work, as a sort of armed police, no matter how great the emergency. Such regiments need, for the actual work they would be called upon to do, only a small proportion of their present establishment of British officers: but they contain a large proportion of officers who are just as keen on their profession as those in the very crackest of crack corps. Such officers would welcome attachment to "fighting" regiments, with the prospect of being attached to such regiments on actual service; and this is what the writer believes to be the solution of the difficulty suggested. Junior officers from certain selected corps could be attached, preferably in the hot weather, so as not to minimise the fourth advantage claimed above, for a period of, say, six months, to the "fighting" units; if well reported on by the senior officers of the corps to which they were attached, they would be entered in a list of reserve officers for that particular corps, and would join it in case it were necessary to bring the number of officers of that corps up to service strength. "Refresher" attachments, say, for three months every subsequent second year, would be desirable, to enable these officers to keep in touch with the men of the corps to which they would be attached for service.

So much for the present; it remains to consider the best method of ensuring a constant improvement as regards the future. The writer was told a short time ago, by an Italian officer, that in the Italian army officers who have obtained the "school of war" certificate

are promoted when they reach a position two-thirds up the list of their rank, and officers who have obtained the "General Staff" certificate when they reach to half-way up the list. It is easy to criticise the Staff College—no institution is perfect ; and the saying that "the Staff College makes a good man better, but turns many a harmless idiot into a dangerous lunatic" no doubt has a certain amount of truth in it. So has the oft-quoted saying of Frederick the Great about the mule ; but the Staff College has—or should have—no use for harmless idiots, nor for mules. It is no doubt presumptuous to suggest that the dropping of "accelerated promotion" after one year's trial, some years ago, was an unwise concession to popular clamour ; but two more years of it would have reduced the clamour to a grumble, and two more years still would have ensured cheerful acceptance of a fixed principle. Officers who are not sufficiently keen on their profession to attempt the Staff College, now that it has been brought to their doors at Quetta, can have no grievance if they see their keener brethren promoted over their heads ; and the writer believes that some such system as that of the Italian army would not only be welcome, from the point of view of efficiency, but would actually be popular with officers who take an interest in their profession. The automatic promotion of officers of the Indian Army after a fixed number of years in a lower rank, would obviate any real grievance ; and only a selected few from each year's "*p.s.c.*" would be reckoned as "qualified for the General Staff," the remainder being in the position of holding the Staff College pass only. Further, it is believed that it would be a step in the right direction to reduce the maximum age for entrance to the Staff College from 35 to 30 ; this would have to be done gradually, of course, a year at a time, so as not to disturb existing prospects. Probably it is to officers who are not *p.s.c.*—which is the case with the writer, one of the large number of officers who were over 35 when the Indian Staff College was started—that is most clearly apparent the immense advantage conferred by a Staff College training ; the identity of thought on important military matters, which is inculcated in Staff College students, is lacking to their unqualified brethren, who can only acquire it painfully and piecemeal, much as the educated man has an immense advantage over the self-educated man. No doubt, the self-educated man does sometimes come to the front, but this would also be the case under the scheme suggested ; the one-year special course at the Staff College being a great safeguard.

Special promotion from lieutenant to captain would probably be unnecessary, and only that in the senior ranks would have to be considered. If the Indian Army could be taken as a separate entity, special promotion to major or lieut.-colonel might well be substantive, as the proposals for "side-tracking" senior officers, already put forward, would probably find the money ; but, the Indian Army being only a part of the Army of the Empire, it is recognised that similar promotion would be necessary throughout the whole of the British Army, so that advancement would have to be by brevet. An

officer holding the General Staff certificate might be promoted brevet-major after 13 years' service and brevet-lieut.-colonel after 18, with the proviso, of course, that the mere possession of the certificate gave no right to such promotion, but that approved service is also necessary : and, with the same proviso, an ordinary *p.s.c.* might get the same steps after 14 and 20 years' service respectively. Everyone cannot get into the Staff College, of course, but everyone can try ; and it might come to be a *sine quâ non*, for an officer to be considered as a serious student of his profession, that he had at least qualified for the Staff College. Any officer who had not taken the trouble to do this, might eventually be called upon compulsorily to pass to the reserve of officers, at 23 years' service, though of course at first this could only be voluntary. At the same time, even at the start, officers whom it was considered desirable to pass to the reserve, and who did not themselves desire to go, would doubtless be amenable to certain forms of persuasion, recourse to which is not altogether unknown under existing conditions.

It cannot be expected that a reform of this nature can be carried out without individual cases of hardship ; but the writer has faith in the sense of patriotism of the British officer, and in his readiness to be prepared to sink the personal factor in the good of the Empire. The writer is a firm believer in the reality of the "German menace," and there must be many British officers who hold the same belief. To these, then, at any rate, the thought must be a real one that the time may not be far distant when the British Empire may have to fight for her very existence, and the necessity for putting forth our best endeavours to prepare ourselves for such a crisis must far outweigh, to the average patriotic Briton, any personal considerations. Those of us who are passed in the race must console themselves with the thought, so nobly expressed in Kipling's "Galley Slave,"

" It may be, that Fate will give me life and leave to row once more.—
Set some strong man free for fighting as I take awhile his oar :
But to-day I leave the galley. Shall I curse her service then ?
God be thanked— what e'er comes after, I have lived and toiled with men ! "

CAUSE AND EFFECT IN THE FRANCO-GERMAN WAR.

I.—INFLUENCES MAKING FOR WAR.

BY CAPT. G. M. ORR, 11TH LANCERS.

The gradual spread of Liberalism, government by the people for the people, representative government, call it what you will—happy as have been its effects on those who previously suffered under autocratic rule, has brought many dangers in its train. Perhaps the greatest danger is the influence the voice of the public, or even a section of the public, may have on the directors of the nation's policy. Of all the tasks which a cabinet has to perform, the most difficult is the direction of foreign policy; it must suit the nation's needs; it must be in accordance with the national characteristics; and if in the clash of interests it has to be put to the trial of war, then the government, which has not seen that its armed forces are able to enforce its policy, has failed in its duty to the nation. Strategy, that is to say peace strategy, is not a thing apart from policy, but is part and parcel of it. Every war in the 19th and 20th centuries has shown one side or the other unprepared in the sense that policy had been allowed to outstrip peace strategy. The great war of 1870 was a striking example of this on the French side. At the same time the under-currents in politics have seldom had such an evil influence in any war, first on the necessity for war and then on its direction. In this article the intention is to show the evil moral influence exerted on the French Cabinet by the voice of a section of the people, rather than the blindness of the Government to the fact that its armed forces were in no sense fit for the task about to be enforced on them.

The causes and responsibility for this war have been the theme of many a historian. The last to write with some authority is M. Henri Welschinger,* who has the additional advantage of writing after the publication of M. Emile Ollivier's XIV Volume of his great work "L'Empire Liberal," . . . a volume entirely devoted to the war and its immediate cause, and the justification of his own cabinet's action.

Before going into the events which began with the publication of the Hohenzollern candidature in the press on 3rd July 1870, and which ended on the 15th July, when the French chambers voted the war supplies, it is necessary to look at the state of France and its government at the time.

In 1848, on the downfall of Louis Philippe, (king, not of France but of the French,) the second republic was established, and Louis

* *La Guerre de 1870. Causes et Responsabilités*, 2 Vols., M. H. Welschinger. M. Welschinger is a member of the Institute of France and late Keeper of the Archives, 1910.

Napoleon, after first being elected to the national assembly, was made President in December. Louis Napoleon's life had been a strange one. Born in 1808, the third son of Louis Bonaparte, king of Holland and of Hortense, Josephine's daughter, he was a fugitive from France since 1814. Through all his years of exile he was steadfast in the belief that one day destiny would call him to the throne of France. Imbued with this ambition, he kept himself before the French people by every conceivable means. Twice he attempted to raise the standard of revolt against Louis Philippe. The first time, at Strasburg in 1836, he was taken prisoner and banished to America; the second time, after the *fiasco* of Boulogne in 1840, he was sentenced to captivity for life in the fortress of Ham, but escaped after five years. Writing from his prison in 1842 to a friend, Napoleon describes his life-work, and at the same time shows what a life of conspiracy he had led. "You tell me I am trying to advance my cause by puerile efforts. Heaven knows! Success depends on an immense number of infinitely small things, which only at the end attain weight and count for something. . . . There is nothing puerile in my efforts, however feeble they may be, so long as they originate always from the same motive and are always for the same end. In 1832 I wrote a treatise in Switzerland in order to gain the esteem of those among whom I was forced to live; then for nearly three years I devoted myself to a work on artillery in order that I might acquire by it some friends in the army —, and to show I had at least the knowledge necessary to a commander. By this means I arrived at Strasburg. Then I had the party pamphlet published, not only in self-defence, but in order to give the Government a cause to have me expelled from Switzerland. At London I published '*L'idée Napoleonienne*' that I might formulate the political ideas of the party I tried to prepare the way for Boulogne through 'the newspapers' here I failed."

Three years after his election to the Presidency came the *coup d'état* of the 1st December 1851 by which the Chambers were dissolved and a system, which was practically that of the Consulate previous to the first Empire, was instituted. In the following year, the ten years' presidency was converted into an hereditary empire. From now onward Napoleon was free to carry out his policy of becoming the champion of national liberty. In reality this policy involved him in a series of adventures which made every power distrust him. Following out his principle of nationality—the right of all nations to be mistress of their own destinies—he furthered the growth of Italy and Prussia, and it had much to say to his share in the Crimean war. The year 1866, however, was the crisis. The French people had accepted with enthusiasm his principle of nationality, but when the apparition of Prussia, grown into a large united Germany, faced them, they grew alarmed. Thiers, à propos of the Luxemburg question in 1867, voiced public opinion when he said that France must never permit an united Germany. Napoleon, ill

and aging, now realised the ill effects of his Polish policy and his Mexican adventures, and began to see whether he could not better matters by giving in on some questions of home politics. In 1868 the Press was given greater freedom and restrictions were withdrawn from the laws for public meetings. In 1869 the responsibility for Government was to be shared by the ministers who instead of being answerable only to the Emperor were made answerable to the Legislative Chamber. Finally to give full effect to this new policy, Napoleon chose M. Emile Ollivier, a champion of constitutional principles, to form a Cabinet on the 2nd January 1870. The Liberal Empire had begun its short and disastrous career. Hitherto Napoleon alone had directed, and been responsible, for foreign policy. Now it was in the hands of a minister responsible to the Legislative Chamber. Nevertheless Napoleon continued to work in secret through his own emissaries. "The methods of his early years had served him so long and so well that he could not bring himself to cast them aside when they had achieved his purpose. He could not understand that a successful conspirator has no further need to conspire."^{*}

Ollivier had a difficult task before him. The last thing he wanted was war with anyone. There were innumerable projects awaiting development. His hopes were, he thought, about to be realised. He would show the world that in France a liberal constitution could exist side by side with an Emperor. According to our lights he was not Prime Minister. Although his influence was supreme in the Chamber, yet at the Council sat the Emperor, and Ollivier's influence was at once overshadowed.

The Empress's influence with her husband was undoubtedly powerful. Ever since their marriage in 1853 there had been but one goal to which they both worked, that the Empire should be assured to the house of Napoleon. She, along with the Bonapartist party in France, had viewed with suspicion and dislike Napoleon's overtures to the democrats and the formation of a Liberal Cabinet.

The Empress has been credited with believing that only one thing remained to place the dynasty on a lasting basis, and that was a successful war. The Bonapartists desired a return to absolutism and were on the look-out for any sign of weakness in the direction of affairs by the Liberal Ministry.

When M. Ollivier first took office, Count Daru had been appointed Foreign Minister, but in May 1870 he had been replaced by the Duke of Gramont, French ambassador at Vienna. Gramont, while at Vienna, had thwarted Bismarck's policy and now Bismarck chose to consider his appointment to the Ollivier ministry as one fraught with danger for Prussia. Gramont had once been called by Bismarck "the stupidest man in Europe," and he ever afterwards was filled with a determination to get the better of the great chancellor.

* *The Rise of Louis Napoleon : Simpson, 1909.*

Meanwhile throughout the spring of 1870, Napoleon had been secretly discussing and developing with Austria and Italy combined plans of aggression against Prussia. These plans were to take definite shape in 1871. Austria, however, said that if she made war she must be forced into it, and Italy made the withdrawal of French troops from Rome her condition. The Empress, who herself is reported to have said she was *deux fois Catholique* as a Spaniard and as French Empress, and who was the mainstay of the French clerics, would not hear of the bargaining away Rome to the Italian Government. Of all these plans Napoleon's ministers knew nothing, and on June 30th, M. Ollivier declared in the Chamber that peace had never been better assured.

Such was the political atmosphere when, on the 3rd July, the Havas News Agency communicated to the press the news that Prince Leopold of Hohenzollern-Sigmaringen was an approved candidate for the vacant throne of Spain. The Duke of Gramont at once instructed Lesourd, the French *chargé d'affaires* in Berlin, to point out to the Prussian Government the bad feeling that this candidature was awakening in France. In reply Von Theile declared that the Prussian Government was not cognisant of the candidature. At the same time Gramont warned Von Werther, the Prussian ambassador in Paris, that France would not tolerate a Prussian prince on the throne of Spain.

Opinion in France as voiced in the press found expression in question put on the 5th July to the Government as to its intentions. This was answered on July 6th by Gramont from the *Tribune* in the following words:—"It is true that Marshal Prim has offered the crown of Spain to Prince Leopold of Hohenzollern, and that the prince has accepted it. But the Spanish people have not as yet given their sanction, and we do not as yet know the true details of a negotiation which has been hidden from us.* Moreover, a discussion now could come to no practical conclusion, and we ask you to adjourn it. We have not ceased to show our sympathy with the Spanish nation and to avoid doing everything which could have the appearance of an unwarrantable interference in the affairs of a great and noble people in the full exercise of their sovereignty. With regard to the different candidates to the throne, we have not veered from the path of the strictest neutrality, and we have never shown either preference or dislike for any one of them. We shall keep to that path. We do not think that respect for the rights of a neighbouring people obliges us as to allow a foreign power, by placing one of its princes on the throne of Charles V, to succeed in upsetting to our disadvantage the present equilibrium of forces in Europe and placing in jeopardy the interests and honour of France. This eventuality, we have a firm hope, will not be realised. To prevent it we count both on the wisdom of the German people

* Napoleon and his ministers had been kept fully informed since October 1868 by Benedetti that negotiations were going on to place the prince on the throne of Spain.

and on the friendship of the Spanish. If this were otherwise, strong in your support and in that of the nation, we shall know how to fulfil our duty without hesitation and without weakness."

Was there any wonder that Europe, generally, was put in ferment on reading this declaration, or that Bismarck should describe it as a "threat with the hand on the hilt of the sword?" Meanwhile the French papers were declaiming against the candidature in terms that undoubtedly were offensive to Prussians.

On 7th July Gramont sent orders to Benedetti, the French ambassador to Prussia, to proceed to Eins, where King William of Prussia was, and to get the King to make Leopold withdraw from a candidature which had been accepted without his permission. The King's answer was that the affair concerned the prince and not him. Gramont had also written on the 7th to Benedetti that a disavowal would not be enough, but that the King should insist on the candidate withdrawing. "If you get the King to revoke the prince's acceptance, it will be a great success. The King will have made peace certain. Otherwise it is war." To the insistences of Benedetti the King answered that it was rather for the French Government to repair the harm done by their declaration of 6th July.

At the same time the King was certainly writing to Prince Leopold's father, Prince Antoine, asking him to bring pressure to bear on his son to renounce the crown of Spain. On the 10th July Prince Antoine answered to the effect that he could not carry out the King's wishes.

On 10th July Gramont had written again to Benedetti to carry out explicitly his instructions of the 7th July and, after saying that public feeling was highly incensed, added "if the King does not see his way to advise the prince to withdraw, well! it is war at once, and in a few days we are on the Rhine."

On the 11th July the King told Benedetti that he hoped to hear again from Prince Antoine the next day, and that meanwhile he, Benedetti, must possess his soul in patience. On this same day Werther, who had gone to Prussia for instructions, was bidden to return to Paris.

The next day, July 12th, the whole of Europe rejoiced to see in the papers that Prince Antoine had, on behalf of his son, renounced the offer of the crown of Spain.

This news reached Paris at first unofficially through the medium of a telegram from Prince Antoine to Olozaga, the Spanish ambassador in Paris. As soon as Ollivier heard it, he spread the news that the Prussian Government had given satisfaction to France, and that peace was now assured.

The Bonapartists and the court did not see it at all in the same light and mistrusted the unofficial communication of "Le pere Antoine." Clément Duvernois, who in the morning had announced that he meant to interpellate the ministry if things took a peaceful turn, now put the question—"we beg to ask the Cabinet what guarantees it has demanded or intends to demand to prevent a

recurrence of complications with Prussia." Gramont deferred giving an answer.

A little before 3 P.M. that afternoon Von Werther on his return from Germany called on the Foreign Minister. The visit was interrupted by the arrival of Olozaga, the Spanish ambassador, who asked for an immediate audience to communicate some news of the highest importance. It was that Spain herself withdraw the offer made to Prince Leopold. Gramont objected to the procedure on the ground that an affair which now closely concerned both France and Prussia, could not be settled between Spain and the Hohenzollern family.

Olozaga left full of depression at the turn things were taking, and Gramont returned to the interview with Werther. He began by asking Werther whether the King had not realised that in authorising Prince Leopold's candidature, he had wounded France. Werther answered that the King had no idea the affair would be so badly received. Gramont pointed out that France could not but have a particular interest in the occupation of the throne of such a near neighbour, and that France was rightly offended at the secrecy of the negotiations which had been kept from her. He went on to say "that he considered the prince's renunciation of the throne of Spain as quite a secondary matter, for the French Government would never have agreed to the occupation of it." He continued that, in his opinion, the most important thing of all was to re-establish friendly relations with Prussia. He then put it to Werther whether the real way out of the trouble would not be a letter from the King to the Emperor which should express regret for what had happened and pleasure that a solution had been arrived at which was calculated to preserve the friendly relations between North Germany and France. At this stage of the interview M. Ollivier was announced. After Gramont had explained the situation in a few words, Ollivier strongly supported the idea. In his account of the conversation Werther says, the two ministers were anxious that he should telegraph the substance of the conversation, but that he did not consider such a course necessary. They also said that if he did not see his way to undertake the mission, they would have to instruct Benedetti to raise the question.*

After Werther's departure, Gramont left for St. Cloud to make known to the Emperor the discontentment of the deputies which had been evident in the Chamber during the sitting that morning, and to confer with him on the situation; but before parting from Ollivier he said he would not take action in any way before the council meeting which was arranged for next morning, the 13th. When the Emperor heard what Gramont had asked of Werther, he advised his Foreign Minister to send a despatch at once to Benedetti explaining why the Government thought it necessary that the King of Prussia should associate himself with the Hohenzollern renunciation, and should

* Ollivier in his last volume denies that he joined in suggesting such a letter.

give some assurance that he would not authorise the candidature again.

At 7 P.M. Gramont, on his return from St. Cloud, sent the famous despatch to Benedetti, bidding him obtain from the King an assurance that he would not allow the candidature again, but for some unaccountable reason he never mentioned to Benedetti that he had asked Werther to obtain a letter of apology from the King. Ollivier heard of this telegram at about 11 P.M., and, with the intention of softening the tone of the demand, sent another telegram to Benedetti at 1-45 A.M., on the 13th, which was received in Ems at 10-30 A.M.

We now come to the events of the 13th July. At 9 A.M. the Council met at St. Cloud; Gramont's announcement that he had bidden Benedetti demand certain guarantees for the future from the King of Prussia, was received with surprise and regret by a minority of the Council. Very shortly afterwards, at about 10 o'clock, Lord Granville's despatch to Lord Lyons, the British ambassador in Paris, was presented to the Emperor and read in the council. It pressed the French Government to accept the Hohenzollern renunciation and so end the matter. Ollivier, moved by this appeal and thinking he could lessen the danger of the situation, put and carried a motion not to call out the reserves by 8 votes to 4. When this decision was made known to the Legislative Assembly, the majority were plainly hostile, and Clément Duvernois and others scoffed at the dilatoriness of the Government's action. The Senate went further than the Chambers in its expressions of disapproval of the Government, and there was talk of overthrowing the Ollivier ministry. Nor was the press behind hand with its chorus to the same tune.

Let us now see what was being enacted on the other side of the frontier at Ems. At 10 A.M., Benedetti met the King taking his morning walk and then and there asked if he would give the French Government his assurance that he would not allow the Hohenzollern candidature to be repeated. The King declined absolutely to bind himself in such a way, but Benedetti parted from him with the assurance that as soon as the King heard the news of the renunciation officially, he would send for him. There was as yet no intention of not seeing Benedetti again. At 12-5 P.M., Benedetti telegraphed the result of his interview and added that he would be seeing the King again as his Majesty had said he would send for him when his courier arrived with the official news, probably about midday. But shortly after Benedetti had left the King on the promenade the latter received Werther's report which told of the interview with Gramont and Ollivier and the suggestion of the letter of apology. The King was greatly incensed. "Has one ever seen such insolence!" he wrote to the queen. This so rankled in his mind that when the courier arrived from Sigmaringen with the official news of Prince Leopold's withdrawal, instead of sending for Benedetti he sent his A.-D.-C. to him to tell him the news, and to say that he might

telegraph that he, the King, considered the whole affair at an end. Benedetti then asked the A.-D.-C. if he might also add that his Majesty approved of the decision and gave an assurance against it happening again. The A.-D.-C. returned to say that the King approved of the decision, nothing more. Benedetti telegraphed this answer at 3-45 P.M., saying that he had asked for another interview with the King on the subject of the guarantees. At 7 P.M. he again telegraphed that the King's A.-D.-C. once more had informed him that the King had agreed to give his entire approval without reserve to the prince's withdrawal and that he could do no more. It is important to note that the above messages were received by Gramont before the famous Ems telegram was seen, and consequently Gramont was in full possession of the fact that there had been no sudden refusal on the part of the King to see Benedetti again after he had asked for guarantees. It was this latter meaning that the Cabinet and the French public were going to put on the incident when they heard it through the medium of the press. Gramont could easily have refuted it.

On the morning of the 14th, Gramont, in a great state of excitement, brought to Ollivier a despatch from the *chargé d'affaires* at Berlin, which said that a supplement of the *North Germany Gazette* published at 10 P.M., on the 13th, contained the statement that the King had refused to see the French ambassador.

Controversy over the famous Ems telegram has never ceased to rage. Bismarck himself has pictured for us the scene, how he, Moltke, and Roon were sitting at dinner, depressed at the thought that the war for which they had so carefully prepared was not to be, when suddenly a telegram arrived from the Foreign Secretary describing the incidents of the day at Ems and giving the Chancellor leave to inform the press and the ambassadors if he thought fit, how he drew a blue pencil through several parts of the telegram and then sent it to the press, his alterations giving the news a decisive appearance instead of being "a fragment of a negotiation still pending." Let the facts speak for themselves.

The original telegram.

The telegram as cut down.

His Majesty writes to me :—“ Count Benedetti stopped me on the promenade and finally in a very importunate manner demanded of me that I should authorise him to telegraph at once that I would bind myself for the future never to give my consent again if the Hohenzollerns renewed their candidature. I demurred to it, finally in a tone rather grave, that it was neither possible nor right to commit oneself to such an engagement for ever. Naturally I told him that I had as yet received no news and that as he was informed sooner than I was through Paris and Madrid, he must see clearly that my Government again was not concerned in it.”

His Majesty has since received a letter from the Prince.

His Majesty, having told Count Benedetti that he was awaiting news, has been pleased to decide, having regard to the demand mentioned above, and on the representation of Count Eulenburg and myself, not to receive Count Benedetti again, but only to send him word by an A.-D.-C. that His Majesty having received confirmation of the news from the Prince, which Benedetti had already received from Paris, had nothing further to say to the ambassador.

His Majesty leaves it to your Excellency to decide whether this fresh demand of Benedetti's and its rejection should not be immediately communicated to our ambassador and to the press.

After the news of the renunciation of the hereditary Prince of Hohenzollern had been communicated to the Imperial Government of France by the Royal Government of Spain, the French Ambassador at Ems further demanded of His Majesty that he should authorise him to telegraph to Paris that His Majesty the King bound himself for all future time never to give his consent again if the Hohenzollerns renewed their candidature.

Thereupon His Majesty the King decided not to receive the ambassador again and sent to tell him by the A.-D.-C. on duty that His Majesty had nothing more to communicate to the ambassador.

It has always been the custom to make out that it was Bismarck's so-called “editing” of the real telegram that was the cause of the war, but the *Cambridge Modern History* hits the right nail on the head, when it says, “that it was not in Bismarck's power to avoid war, since Napoleon had long been making careful preparation for it. By adroitly seizing the opportunity, which the unjust demands of France afforded, Bismarck involved the French in war before their allies were ready for action.”

The communication in the press was the first that the public heard of the incident of the 13th; and although Gramont might have enlightened them as to the real facts, he did not choose to do so. Consequently the crowds in the boulevards, already thirsting for war for some reason that they did not really grasp seized on the apparent abruptness of the King's action as regards their ambassador as a real pretext. French honour had been touched.

The atmosphere charged with so much electricity was too much for Gramont. On arriving at the Council at 12-30, he said war was inevitable, and if the rest of the Council did not think so too, he would resign. Le Boeuf, Minister of War, followed suit. For several hours the Council discussed the press communication, and at 4 P.M. Le Boeuf left to give the order to mobilise. A telegram then arrived from Benedetti that he had seen the same communication and attributed it to the King's Cabinet, he further said the King had personally said good-bye to him at the station that morning and had inferred that further negotiations could be carried on by the two governments. Thrown once more into doubt as to the justness of their action, Gramont suggested the idea of an European Congress to settle the matter. This idea was warmly supported by Ollivier, and it was agreed a declaration should be read to that effect to the Chamber, and an urgent note was sent to Le Boeuf to stop him from calling out the reserves. At 6 P.M. the Council broke up. The Empress received the news of the Congress' proposal with an indignation which she did not attempt to conceal. France would be branded with cowardice and the Emperor dishonoured for ever. Another meeting of the Council was summoned for that night and the members, with certain exceptions, met at 10 P.M. The Empress for the first time took her seat at the Council. Ollivier strenuously defended the proposal for a Congress and the Emperor was reduced to tears. The ministers for war and marine said they would resign. The Emperor was taken ill and had to retire for half an hour. On his return war was decided on, but as all the members of the Council had not been present the final decision was postponed to a full meeting to be held next morning. It was known that Benedetti had arrived in Paris at 10-15 A.M. on the 15th, and that he could then have enlightened them as to the incidents of the 13th, but no, the Council met and declared for war.

When the declaration was read to the Chamber, Ollivier and Gramont based their demands for supplies for war on the fact that the King's insult to their ambassador was sufficient justification. In vain Thiers asked to see all the despatches. Benedetti himself was present, but not a word was addressed to him. That night Thiers had his windows smashed by the street crowds !

It is difficult to apportion the blame for this fatal declaration of war. The Emperor, wracked with pain, was the prey to first one influence and then another. Ollivier, himself earnestly desiring peace, seems to have been led into war by the action of his colleagues. The sum total of his own efforts was to endeavour to soften the tone of what others said and what should have had his previous authorisation. He honestly thought that he would serve his country best by remaining at the head of affairs, although the Government was moving in a wrong direction. He himself said on the evening of 14th July, "If we do not meet the wishes of the majority to-morrow we shall be turned out and a reactionary Cabinet will take our place only to carry out the war under unfavourable conditions. If I

were to resign, the accession of a Rouher administration would be considered as a kind of *coup d'état* against parliamentary reforms . . . By resigning we will discourage the country . . ." Two or three of the Cabinet were opposed to the war and to the way in which it was being brought on, but they acquiesced in the action of the Foreign Minister rather than resign and let a reactionary party take up the reins. Gramont is credited with being very much under the influence of the court war party. No one knew better than him the true facts of the incidents at Ems, but he made no effort to enlighten others. He, more than any, seemed to lend his ear to the voice of the Paris crowds and press. On the 10th he wrote to Benedetti, "Public opinion is inflamed and outruns us on all sides: we are counting the hours." And all the time in his mind was the thought of how not to be beaten by Bismarck. At the back was the Empress, combining in herself the leadership of the Bonapartists and the ultra-imperialist party. While the one urged that the memory of the great Napoleon was being dishonoured, the other worked on her woman's ambition that a successful war was the one thing necessary for the sake of her son.

Over all loomed the shadow of the press and the Parisians, who by word and action goaded the weak and timid ministry into their fatal decision. If only the latter could have looked beyond the angry faces of the crowds and the pages of the newspapers of the boulevards they would have taken courage from France of the provinces, unmoved by the supposed slights to ambassadors, and more than ready to back up a peaceful solution. But throughout history the Paris mob, "Greedy of shows and excitements, whose imagination was spoiled by the custom of political quackery, for whom war was but a drama and history a romance," has exercised an extraordinary influence on the impressionable Gallic mind.

In this case the mob was the instrument, unknown to itself, of the war party of France.

Books read:—

La Guerre de 1870. Causes et responsabilités. by H. Welschingen.

Modern Europe, by Alison Phillips.

The Development of the European Nations, by Holland Rose.

Cambridge Modern History, Vol. XI.

The Rise of Louis Napoleon, by J. Simpson.

VERNACULAR EXAMINATIONS.

BY F. A.

The discussion, lately proceeding in the *Journal*, regarding the desirability of the introduction of Urdu as the *lingua franca* of the Indian Army, only deals with one part of a very large subject. British officers are, in almost all Indian regiments, obliged to pass an examination in a second language ; and it does not seem unreasonable to demand a similar effort from Indian soldiers. But any attempt to introduce Urdu as the language of ordinary intercourse between British officers and their men, would undoubtedly be a step in the wrong direction. Urdu might well be introduced as the *official* language in Indian regiments considered as a whole, but British officers must be encouraged to make themselves able to converse freely with individuals in their own vernacular.

It is admitted that the present system of examinations is faulty, and a change is impending; but it is much to be doubted whether anything short of a radical change will produce any real improvement. With all due respect to the very able members of Examination Boards in India, prolonged service as an examiner is apt to engender a pedagogic point of view ; and this backed by the traditional British attitude that (to quote Mr. Choate, lately American ambassador in London) a thing is done in a certain way, because it always has been done in that way, and is not done in a different way, because it never has been done so—rather reduces the value of “expert” opinion on such subjects. There is another side to the shield, and one that, I believe, deserves consideration.

I believe that the remedy lies in the absolute abolition of textbooks in all language examinations, and the introduction of a system identical with that now in use in England for examinations in foreign languages. Candidates should be called upon to translate extracts from vernacular newspapers, selected on the spot by the examiner and, if necessary, read out *viva voce* by a member of the Board. The present Secretary to the Board of Examiners at Calcutta is my authority for the statement that no ordinary officers, fresh from passing the Higher Standard examination in Hindustani, would be able to translate the simplest paragraph taken from the “Fauji Akhbar.” The obvious retort to this—which the Secretary fully admits—is, so much the worse for the examination in Hindustani by the Higher Standard, as at present conducted. I only take the *Fauji Akhbar* as an example, because I believe it to have special advantages, which will be referred to again, later—the argument is the same for any vernacular paper. The statement, coming from so high an authority, must be accepted as correct ; the examiner sees in an argument against introducing the *Fauji Akhbar* (or any other

vernacular newspaper) as a test ; but I venture to think that the argument really points in exactly the opposite direction.

The text-book plays directly into the hands of the professional munshi, who usually produces a very ungrammatical translation of it, and encourages his pupils to learn by heart passages, mostly unsuitable for ordinary use, as tags to assist in the writing of exercises. Moreover, a parrot-like knowledge of the text-book is more than half the battle towards the passing of an examination. A personal reminiscence in support of the second half of this statement may not be out of place. My regiment being in China, I, like many others, beguiled my leisure by attempting to extract Rs. 1,000 from a generous Government by passing in Chinese. This I successfully accomplished, obtaining a percentage of over 75. On my telling the chief examiner of my surprise and gratification at this result, adding that I knew that I was "no flyer," he replied, " You *are* no flyer ; but you knew your text-book inside out and backwards, and we simply *couldn't* spin you."

The solution seems to me to be, to hold one examination for all the different classes of tests, classifying the candidates according to the percentage of marks made, as is done in the case of foreign language examinations in England. It would probably be an advantage to adopt the same nomenclature also, *i.e.*, interpreter, passed, and elementary, instead of the existing "Standards :" and the tests should be the same as those exacted in the home examinations ; that is to say, *no text-books* should be included. The interpreter tests at home are really practical, while no language test in India is : not even the H. S. Pushtu, which is probably the nearest approach to being so. The "recommendation" of text-books is almost as objectionable as their selection ; for the candidate considers himself aggrieved if one passage, at least, is not set from one of the recommended books, and consequently sets himself to learn them all, so as to be prepared for any passage from any one of them.

To abolish text-books, and introduce a practical language examination, will admittedly reduce the number of officers who qualify by the higher tests ; but this would be an advantage rather than the reverse. We ought to desire to encourage the man with the real linguistic faculty, not the man who has the knack of passing examinations. The Degree of Honour test is a thing apart, and might well remain as at present, for a man has to be a regular "pundit" at a language to pass it ; and doubtless a few pundits are useful, even in the army. But for all lower tests, what should be aimed at is the encouragement of interpreters—men able to speak, read, and write the ordinary language really fluently.

The number of officers of the Indian Army qualified in "fancy" languages would be most encouraging—if their qualifications had any real or permanent value ; as it is, they merely represent a large annual waste of Government money. Government gives no encouragement to officers to *keep up* a language, once acquired ; and the linguistic attainments of the man who has earned £200 or £300 in

language rewards are, in 19 cases out of 20, commercially valueless or nearly so. Further, the present system, while nominally giving a reward to officers who pass in languages, really only does so in the case of the less important—the non-obligatory examinations. For the obligatory tests, officers in nine cases out of ten employ professional Indian munshis, to whom they not only give a monthly salary, but usually the whole of the reward as well. No officer in an Indian regiment need do this; the regimental schoolmaster is perfectly qualified to instruct, and there is the whole regiment to talk to, for practice; yet most officers will insist in believing that the professional munshi can give them the correct "tips" with which to circumvent the wiles of the examiner. The suggestion put forward, therefore, is likely to harm no one except the professional munshi: and, if we can utterly abolish him, so much the better for his potential pupils.

The proposal then is as follows:—First and foremost, the absolute and qualified abolition of text-books. Secondly, the adoption of the system of examination already in use in England for foreign languages, such examination to allow of candidates passing in four different classes according to the percentage of marks made, with proportionate rewards.

			Rs.
Interpreter,	1st class,	80 per cent of maximum marks, reward	1,000
Do.	2nd class,	65 do.	500
Passed	50	do.	150
Elementary	25	do.	50

The second class interpreter, or "proficiency" standard, has been retained for purposes of comparison, though personally I feel sure (and I know that many officers, well qualified to judge, are of the same opinion) that we have really no use for any "interpreter" but a first class one—in any case, the percentage of marks necessary to attain this title is clearly too low, and should be raised from 60 (what it is at home) to at least 65 per cent of the maximum marks.

The above grades roughly correspond to the present High Proficiency, Proficiency, Higher Standard and Lower Standard. As already stated, the Degree of Honour should be treated separately and left as it is at present. The rewards are reduced, but seem to be quite high enough; also, the chance of making a sufficient percentage of marks to earn the higher rewards will certainly attract plenty of candidates, though the practical nature of the examination will, as certainly, limit the number of those who earn them. Also, the rewards for the lower qualifications are high enough to ensure that officers are not actually out of pocket through passing their obligatory examinations, so long as they do not employ the "tipster" class of munshi; there will be less inducement for them to do this, and the lower rewards will be less attractive to the munshis themselves. There will be fewer officers titularly "proficient" and "highly proficient," but just as many really so; in fact, probably more, as the formidable libraries of text, or recommended, books, act as a deterrent to many officers who would otherwise try for the higher examinations. We shall also have the further advantage

that the Army List will tell us who are *really* proficient, and not only who are theoretically so. Requalification rewards, on a lower scale, should also be instituted, and officers encouraged to present themselves for requalification at stated periods.

Under such a scheme, the saving to Government in language rewards should be considerable. For instance, there are upwards of 800 officers who have passed the H. S. Pushtu, who represent an expenditure of Government money of over six lakhs of rupees, but a commercial credit of enormously less. This saving might be utilised in another small reform which would, I believe, be highly beneficial. One properly qualified officer might be appointed regimental interpreter—the ideal, of course, would be one to every regiment, but it would depend on whether there was a fully qualified officer in any particular regiment, before one could be appointed, preferably not above the rank of Captain, with a small allowance: say, Re. 1 or Rs.1-8 per diem while actually present with his regiment; if absent, from whatever cause, the pay should either lapse, or be drawn by an understudy, if there were a qualified one in the regiment. This officer should be employed to read vernacular letters addressed to the C. O. or adjutant, to write answers for them, to act as interpreter at courts-martial, to read out proclamations on parade, and so on. There are a number of officers who can write an "exercise," introducing ridiculous phrases about "the parrot of sensibility flying away with"—heaven knows what; but how many can write an ordinary letter to a sepoy on leave, or an announcement to an Indian official of an impending visit, for sport or other purposes? Again, the reading of vernacular letters is sometimes of vital importance, yet it is an accomplishment, perfectly easy to keep up by practice entirely beyond the powers of the vast majority of officers of the Indian Army. I remember long ago, to have been told by an officer who escaped during the Mutiny and was obliged to hide in a cane-brake, that twice vernacular letters were thrown by night into his place of concealment, but that he was unable to read them.

Finally, I should like to urge that a vernacular newspaper should be utilised for language examinations. There could be no question of this degenerating into a text-book, for the weekly recurrence of a fresh number would make it impossible for candidates to "get up" a newspaper as they now do a text-book. For Urdu, Hindi, and Gurmukhi, the *Fauji Akhbar* should be most valuable, and for a special reason. This paper makes a special appeal to the Indian soldier, and every week it contains a number of letters, from all ranks, stating grievances, making suggestions, and asking questions. If officers would (or could) read these letters, they would gain a valuable insight into the opinions of the men of the Indian Army on current topics, and would also find plentiful subjects of conversation with their men about such matters. In these days, when "sympathy" is so much insisted on, I venture to think that the *Fauji Akhbar* can be made a most valuable means of assistance to British officers of Indian regiments; but I suppose that the

number of officers who actually read it could be counted on the fingers. This is largely, of course, because they cannot, but that, I maintain, is the fault of our present system of examination; and, of those who can read it, how many do? There are other papers which could be utilised for examinations in other languages, such as the Persian "Habl-ul-Matin" of Calcutta, and the Pushtu "Afghan" of Peshawar, which would be an enormous improvement on the present text and recommended books.

I believe that I have, in the above suggestions, made out a case that is, at least, worth consideration. I claim for it that it would save money to Government, result in increased touch between British officers and their men, go far to abolish the professional munshi and to relieve officers from his exactions, improve the standard of practical knowledge of vernacular languages, and bring into being a class of *real* interpreters among British officers, whose paper qualification should also be their true one.

PRECIS OF FOREIGN MILITARY PAPERS.

Militär Wochenzblatt.

THE OPPOSING VIEWS OF LORD ROBERTS AND SIR JOHN FRENCH ON CAVALRY.

In numbers 87, 88 and 89 of the *Militär Wochenzblatt* for July, General von Bernhardi has contributed articles under the above title, in review of Mr. Erskine Childers' book "War and the Arme Blanche." These articles should be of interest to English readers owing to the general notice which has been taken of Mr. Childers' book, and the discussions which have resulted from it.

General von Bernhardi prefaces his remarks by saying that he does not consider Mr. Childers' military experience sufficient to warrant his posing as an authority on the subject of which he treats, and that he himself is only led to notice the book because, in its preface, Lord Roberts expresses himself in all essentials at one with the views and proposals of the writer. These views are in direct opposition to those of Sir John French, and a consideration is, therefore, invited on questions which are of far-reaching importance in Germany as well as in England. The opinion of such a well known authority as General von Bernhardi on these questions is of great interest apart from the special circumstances of the case.

General Bernhardi quarrels primarily with Mr. Childers' assumptions that a theoretical consideration of military problems is useless, and that the war in South Africa was of such a normal character that its lessons can, without examination, be accepted as of general application.

He further protests strongly against Mr. Childers' suggestion that no nation in the world, especially the Germans, could have done better in South Africa than did the British. He objects to the differentiation between "shock" and "charge," and to the suggestions that in modern warfare horses cannot be kept in condition for a charge at the gallop, and that cavalry cannot be trained both to shock and fire action. The result of the acceptance of these suggestions would be that the *arme blanche* is obsolete, that the rifle is the true and only arm for the mounted man, that the cavalry duel is a thing of the past, and that cavalry must be replaced by mounted riflemen, who can deliver their fire from the saddle, and ride to close quarters, thence to continue the attack dismounted.

This, briefly, is General von Bernhardi's summary of Mr. Childers' proposals, to which Lord Roberts subscribes, with the exception that the latter would give the mounted rifleman a sword bayonet for hand-to-hand fighting.

On the question of the "cavalry spirit" the German general is also at variance with Lord Roberts. The latter holds that the expression conveys a particular "spirit of the charge," and that cavalry want no other spirit than the soldierly spirit which should inspire all troops. Against this General von Bernhardi quotes from a despatch of Blucher, "Lasting *moral* and persistence brings victory to infantry; but cavalry, in order to attain great results, must be inspired throughout by a certain exaltation, the result of self-reliance, and a high-spiritedness which points the way forward." General von Bernhardi continues, "Infantry in action meets, with a courage which we all recognise, a peril which can be gauged; the dangers which artillery may expect to encounter can be foreseen; on the other hand, cavalry in all independent operations, especially in reconnaissance, rides into the unknown. At any moment they may be confronted by the unexpected, calling for instant decision and often for a bold dash. The province of cavalry calls for consistent daring, and the particular cavalry spirit consists of just the exaltation produced by this spirit of daring, and of confidence to meet all unseen dangers, a confidence derived from courage, quick grasp of the situation, determined riding, and the correct use of the different arms."

He claims that he is at one with Sir John French in opposition to Lord Roberts and Mr. Childers, and considers that cavalry certainly require the firearm in order to carry out their important duties against the enemy's army and its detachments, but that only when the enemy's cavalry has been driven off the field can the widest scope be found for the execution of those duties. Sir John French holds that the cavalry duel must, of necessity, take place, and that it will be fought with the *arme blanche*; and does not restrict the "cavalry spirit" simply to a desire to charge, but gives it a wider meaning, and considers it quite compatible with cavalry fire action.

To prove that the South African war was not a normal campaign, but was, on the contrary, a most abnormal one, General von Bernhardi quotes the following "special conditions" which obtained:—

"In Africa the combatants were, on the one side, a mercenary army trained on antiquated lines, which was strengthened during the course of the war, by unlimited reinforcements from all parts of the world, and, on the other hand, a mounted peasant militia, tied to their ox-wagon transport, unskilled in the offensive on any large scale, and who only learnt the tactical offensive of guerilla and partisan warfare in the later stages of the campaign. The latter fought only with the firearm, so this was the first lesson the British mounted troops had to learn.

"Next, it was a fight between a force greatly preponderating in numbers, and troops, numerically inferior, but superior in the fire fight, and who were therefore able to prolong their defensive positions to an extent which we can never see in European warfare.

Mr. Childers considers it quite normal that 900 men should occupy a position a mile and a half long, as, for instance, the Boers did at Elangslaagte.

"During all the first period of the war, the Boers confined themselves obstinately to the defensive, and left all this time free for the British preparations. All calculations of time were therefore influenced in a way which can never be the case in any European war, where both sides will probably be anxious to bring on a decisive issue. Speedy and forcible reconnaissance was therefore unnecessary, and this at once gives a special character to the whole of the cavalry work."

"Moreover, neither the Boers, nor, as Mr. Childers himself admits, the British, understood the art of reconnaissance by mounted patrols. It appears that the service of reconnaissance and information was generally carried out by native spies with local knowledge."

"After the occupation of the country a guerilla war developed, which had no analogy with a war between two large armies, and which can perhaps be best compared with the guerilla war carried on by the Spaniards against Napoleon."

"In my opinion more special conditions than these cannot well be imagined."

He goes on to point out that the Boers were too weak to meet the British cavalry in shock action, or to charge British infantry; that apart from the chances of guerilla warfare they were confined to delaying action from positions which precluded mounted attack on our part; and that our cavalry never brought off an effective pursuit, partly owing to the ill condition of their horses, and partly because the mounted troops sent on parallel pursuit could not overpower the well posted flank parties of the Boers, and open a road for attack. So abnormal, he affirms, were the conditions for cavalry action, that at Dronfield 150 Boers with one gun successfully resisted the attack, first of a cavalry brigade and three batteries, and later that of three cavalry brigades and five batteries.

This brings him to Mr. Childers' statement that the Germans could not have done better in South Africa than we did. He says, "Far be it from me to belittle the conduct of the British soldier in South Africa, he fought splendidly under very varying conditions; but individual fights are conspicuous for performances on the part of the troops which no one could describe as particularly good, and the casualty lists tell a very significant story, when compared with those of the Franco-Prussian and Russo-Japanese wars."

Taking some of Mr. Childers' assumptions in detail, he combats the theory that the use of the *arme blanche* is inseparable from shock action and the close order charge. "So long as the troops are in close formation, the lance can only come into play so far as it projects beyond the horses' heads; the essential work of the arm comes into play in extended order, either in the hand-to-hand *mélée*, in pursuit, or when the charge has been made in loose formation;" and in answer to the statement that in a modern campaign horses

cannot be kept in condition for the charge and the gallop, he says, "This may be true of the British cavalry; I do not believe it. It is not true of other cavalry. Mr. Childers should read of the exertions to which the horses of Stuart's force were subjected in their various raids, and how they nevertheless kept in condition for the charge. He himself relates how the Boers charged for nearly 2,200 yards at the top speed of their small horses, which had to undergo far greater exertions than the mounts of their numerically superior adversaries."

On the question of the dual training of cavalry, he refers to Stuart's and Sheridan's troops, who were trained for both forms of combat, and often used close compact column to charge cavalry, and on their raids often cut their way through with cold steel, while, in Stuart's opinion, Sheridan's men would have fought better on foot than their own infantry. In South West Africa, he states, the German cavalry, trained to the use of the *arme blanche*, showed how well they could do as mounted riflemen.

After dealing with Mr. Childers' assumptions, General von Bernhardi goes on to his deductions. He heartily agrees that tactics are governed by the firearm, but thinks it a false conclusion that there is therefore to be no more fighting with cold steel. The infantryman carries his bayonet, is it only the mounted man who has no need of the *arme blanche*? In a mounted *mélée* the rifle is as dangerous to friend as to foe, and cold steel is superior both to the rifle and to the revolver. "I consider there is no doubt that, both during the strategical operations of cavalry, and during the battle between the two armies, we must have the cavalry combat, the duel between the opposing mounted forces, and I agree with General French, who thinks that this combat will be essentially one for the *arme blanche*. With modern armies early information is a necessity. The service of information falls to the cavalry of the opposing sides. The cavalry must bring on a speedy issue between themselves; dismounted combat deprives cavalry of their mobility, takes a long time, and often is inconclusive. Shock will therefore be employed, and the cavalry duel will be decided by density and weight of the charge.

"The same in the battle and in pursuit. The enemy's flanks and rear can only be reached after the defeat of the local hostile cavalry, and this will be attained by shock tactics."

The fact that there was not more mounted fighting in South Africa was, in the German general's opinion, due, firstly to the armament and numerical weakness of the Boers, and secondly to the British cavalry itself, "which sometimes did not attack even when it had a good opportunity (*e.g.*, the fight at Roodeval), and which, as I have mentioned, was unable to break down the opposition of small well posted flank guards which stood in its way. The conditions were similar in the Russo-Japanese war. The Japanese cavalry was numerically far too weak to put things to the issue of a charge, and the Russian cavalry was so extraordinarily bad and lethargic that

they cannot be taken as an example of what cavalry can do, either with the *arme blanche* or with the rifle, and least of all from an offensive point of view. The horsemastership too was so bad that frequently the men could only move on foot, the result of over-weighting and sore-backs. It is obvious that such troops could not be very ready to charge, apart from the notorious stupidity of the leading. If too they had restricted themselves to the rifle, they could hardly have produced any better results. At least, it would be pure obstinacy to contend so."

General von Bernhardi next discusses what he calls "the essence of the Roberts'-Childers mounted tactics," the "fire-charge":—

"It cannot be denied that the Boers repeatedly attacked mounted, delivered their fire at a gallop, dismounted, either within effective range or immediately in front of the enemy, and then continued their attack on foot. They either turned their horses loose, or kept the bridle slung over the arm. If they were not victorious, they always succeeded in withdrawing mounted." He analyses at some length two actions quoted by Mr. Childers to illustrate the Boer tactics—Colonel Benson's action at Bakenlaagte on 30th October 1901, and the Boer attack on Colonel Kekewich's columns at Roodeval on 10th April 1902. He deduces from these, not that the Boer tactics were the best suited to the circumstances, but rather that, had our opponents on these occasions been modern well mounted cavalry fighting with cold steel, instead of Boer farmers mounted on ponies, armed only with rifles, and firing from the saddle, our troops would probably have been unable to deploy at all and would have been overwhelmed; and in any case there would have been no question of dismounting at effective range, as the Boers did, a course which must have proved fatal in the face of good troops.

He argues that the Boer success in the first case, and escape with so little loss in the second, were due to the following faults on the part of the British :—

1. Failure in reconnaissance.
2. Inferiority in training and *moral*.
3. Badly chosen positions.
4. Bad shooting.
5. Lack of initiative on the part of the mounted troops.
6. No pursuit.

He sums up the case against the "fire-charge" as follows :—

"It may be possible for men, who have practised it all their lives, to deliver a concentrated aimed fire from the backs of small ponies which move at an amble-gallop; but to inflict loss on the enemy in this manner is practically only possible against targets such as the British presented. At all events no reliable united body of troops will allow their *moral* to be affected by such fire. The Boer pony, too, may perhaps be trained to stand under all conditions, even under fire, when its rider dismounts; but with European cavalry the whole manœuvre is, of course, quite impracticable, apart from the fact that any united body of troops, firing steadily, would shoot

down any enemy who dismounted at the halt, before they could produce any results. The latter would never again set eye on the horses which survived, who would bolt in panic, for it is obviously impossible to train horses as the Boer ponies are trained under their very different conditions."

In his final summing up on the book General Bernhardi states it as his opinion that the theoretical disputations of Mr. Childers are of very little practical worth and only show that there is in the British Army some inclination to a course, which tends, in his opinion, in a faulty direction.

THE JOURNAL

OF THE

United Service Institution of India.

Vol. XL.

April 1911.

No. 183.

SECRETARY'S NOTES.

I. NEW MEMBERS.

The following Members have joined the Institution during the months of December 1910, January and February, 1911 :—

Major W. M. Coldstream, R.E.

Captain E. R. Hayes-Sadler.

Lieutenant E. G. Hall.

Lt.-Col. H. H. Austin, C.M.G., D.S.O.

Lieutenant J. Forbes-Robertson.

Lieutenant G. G. Everett.

Captain H. L. C. Baldwin.

Major A. C. Stewart.

Captain M. O. Clarke.

Major J. F. Finnis

Captain P. G. Benson-Cooke.

Major W. J. Mitchel..

Lieutenant J. M. R. Ford. (Life Member.)

Captain A. G. Cowan. (Life Member.)

Major L. Edwards.

Lieutenant P. C. R. Dodd.

II. TACTICAL SCHEMES.

To assist officers studying tactics, tactical schemes are issued by the Council of the Institution, to members only, on the following terms :—

Rupees 5 per scheme, or Rs. 50 for a complete series of ten schemes, these charges including criticisms and solutions by a fully qualified officer selected by the Council.

Two sets of schemes (10 schemes in each series), revised to 1911, are now available, and a third series is in process of preparation and will be ready shortly.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, Simla, who will forward them to the appointed officer.

III. CHANGES OF ADDRESS.

Members are requested to keep the Secretary informed of all changes of rank, title, or address.

IV. GOLD MEDAL ESSAY COMPETITION.

Officers competing in the Gold Medal Essay Competition, 1910-11, are requested to submit their Essays in triplicate.

V. LIBRARY CATALOGUE.

The new Catalogue of the library will be ready at the beginning of April, and may be obtained on application to the Secretary, price Re. 1.

VI. MILITARY HISTORY PAPERS.

In order to assist candidates for the Staff Colleges, and other officers, in the study of military history, the Council of the Institution have decided, as a tentative measure, to issue, to members only, sets of questions on selected campaigns. The following papers are now available :—

- (a) Two sets of six questions each on the Indian Mutiny.
- (b) Two sets of six questions each on Callwell's Small Wars.
- (c) Two sets of six questions each on the strategy of the Russo-Japanese War.
- (d) Three sets of six questions each on the battles of the Russo-Japanese War.

The charge for these papers is Rs. 5 each, or Rs. 45 for the set of nine, including criticism by fully qualified officers selected by the Council.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, who will forward them to the appointed officer.

CHILLIANWALLAH.

BY MAJOR G. F. MACMUNN, D.S.O.

It has been said that the English scatter their dead round the world like old cigar-ends, and if business or pleasure takes any one to the wattle and dab village of Chillianwallah, he will find one of these same collection of cigar-ends, better cared for too than many.

On the 13th of January 1849, as all the world knows, the Army of the Panjab, under Lord Gough, the Commander-in-Chief in India, met the army of the Khalsa under Shere Singh, and fought such a rough-and-tumble soldiers' battle as had not been seen in India for many a long day.

How it came about, and why they fought, is an oft-told tale, with all the controversies and recrimination that British battles seem to bring in their wake; and it is not proposed to deal with them here. The writer, however, recently spent some hours on the battlefield in endeavouring to reconstruct the scene and the atmosphere, and how it struck him is related below.

Chillianwallah lies 3 or 4 miles south of the canal colony at Rasul on the Jhelum, and is best reached from Rasul itself on a branch line, or from Chillianwallah Road on the Sind-Sagar line between Lala Musa and the Malakwal bridge over the Jhelum. Rasul is one of the two possible places at which Alexander could have crossed the Jhelum, when he forced the ford in the face of Porus and utterly defeated him. The battlefields therefore between British and Sikh, and Greek and Indian, were probably almost identical.

Now to reconstruct our battlefield. Lord Gough having crossed the Chenab, by a series of difficult manœuvres, was advancing in January 1849 to bring the Sikh army to battle. That army was, he knew, posted and entrenched on the heights near Rasul across one of the roads from Peshawur to Lahore. The Kharian ridge dies away to a low rolling down just by Rasul, and on the southern extremity of the ridge and on the downs, the Sikh army was posted, the village of Rasul being near their centre, their right stretching round to Moong. Behind the ridge, between it and the Jhelum, and on the ridge itself, lay their camps. Their position covering the ford was provided with a perfect glacis of sloping grass.

The British-Indian army consisted of Thackwell's cavalry division, and Gilbert's and Colin Campbell's infantry divisions. Marching up the unmetalled track from Ramnagar *via* Dhinga to Rasul, on the 13th of January, the army according to one of the alternative plans in its commander's mind, turned off the track about mid-day and halted before a typical mud village of the Panjab—the village of Chillianwallah.

The day was one of those perfect soldiering days that make up a Panjaub cold weather; cold and crisp with clouds on the horizon, and the snowy range of the Pir Panjal on the right flank of the army.

The troops were in their ordinary winter clothing, mostly in full dress, scarlet and blue coatees, white duck or drab trousers, chakoes and white cross belts, the Native Infantry clad in close representation of the British Line, and the regular Native Light Cavalry like the British dragoon.

There had not been much incident that morning. The army had traversed a dead level plain, covered with big patches of *bher* jungle alternating with clearings and fields, with the normal mud village every three or four miles. There had been caperings of Sikh horse in the scrub in front, and a Sikh outpost had been driven from a mound close to the village of Chillianwallah (Cheelianwallah is the local pronunciation), while away in the distance the Sikh camps were plainly visible on the Rasul heights.

Soon after noon the army was forming up close to the village to wait while the quartermasters were parcelling out the camping ground. The light would fail early. The Sikhs were apparently in position three or four miles away, their position needed careful reconnaissance, and Lord Gough had decided to camp.

There was the usual lull while troops are waiting to move to their camps; officers were looking about; one account by two young officers states that they had climbed up into a tree to get a view, as the whole front of Chillianwallah was covered with *bher* scrub. They saw crowds of Sikhs in the jungle, barely a mile off, perhaps less. Suddenly from out of the scrub a Sikh battery, and then several others, opened fire, bowling round shot into camp.

The British heavy artillery was ordered into action near the mound in front of the village, and played for some little time; then early in the afternoon came the order for the whole force to advance in line, save one brigade. Presumably the force advanced much as it was forming up to camp, Colin Campbell's division on the left, Gilbert's on the right, Pope's cavalry brigade on the right, White's cavalry brigade on the left.

We here come to the stage when it is possible to compare the accounts of the battle with the ground as it is now. It is thought by many that the jungle is now less than in 1849, but it is a question if there is really much change. Neville Chamberlain speaks of patches and belts of scrub, and that exactly describes the ground to-day. We know that both divisions advanced, and that it was impossible to maintain much formation, while brigades and their supporting batteries lost all touch. Each brigade fought its own battle, hammer and tongs, at the closest range. The accounts of the battle and the plans all show a Sikh position on a rise something less than a mile west of the village.* But, as a matter of fact, the rise, especially from the Chillianwallah side, is almost imperceptible (though writers who weren't there talk of 'storming the glacis'). What seems to have been the case was that the brigades, struggling

through the scrub came across an irregular clearing a hundred yards or so wide, with more scrub beyond, and the Sikh guns were drawn up at the edge of this. Crossing this open scrub, swept at close ranges with grape and musketry, is where the heavy losses must have occurred.

It was a short battle on a short winter afternoon, with gathering clouds in the sky. Lord Gough had evidently felt he could not camp in such a jungle without attacking the enemy, who were almost touching him. Towards dusk the brigades had won through the scrub towards a line of villages more in the open. As night was approaching, and the Sikhs had fallen back, Lord Gough was urged to withdraw to his camp, but delayed doing so till very late, to allow of his wounded being collected; but, as a matter of fact, it was impossible to get them all in, so scattered and hidden were they by the scrub.

The main incidents of the fight are well known. The heavy losses of H. M. 24th is perhaps the fact most remembered. This battalion went into the fight over a thousand strong and lost 11 officers and 193 men killed, and 10 officers and 268 men wounded, with 38 men missing. The accounts tell of how, after advancing with difficulty through the scrub, they came into an open space with a deep swamp between them and the Sikh guns, and here is where so much of their loss occurred. It is hard at first to locate this piece of ground, for there is no sign of a swamp in December. But two circumstances locate it quite clearly. One writer speaks of the 24th going through a *dak* jungle, another says that the 24th dead were not brought in to the main graves. Now about 1,500 yards from Chillianwalla to the right of the Moong road, are the only *dak* trees for some miles; to the left of the road are three enclosures with unnamed trench graves, while in front of the *dak* jungle are some dry buffalo wallows, and coarse *vei* grass. After Christmas rains this would no doubt appear a formidable obstacle when swept by grape at point blank range. The exact spot where the 24th charged can therefore be clearly located, even in this extremely featureless battle-field. The 24th went into action, it is interesting to read, in their full dress, and most of their chakoes were pulled off in the thorn scrub. The 29th Foot, in the other division, were wearing forage caps and shell jackets.

The Central Library at Army Headquarters in Simla, contains an interesting instance of the confliction of accounts of events. In Thackwell's "Narrative of the Second Sikh War," p. 163, it is stated, "The 24th lost its colours and much ammunition." A reader has added the following comment in the margin:—"I saw Philip tie the Queen's colour round his waist after tearing it from its staff. When we found him among the killed next morning, the color was recovered. I. A." Another reader has scribbled "Untrue. I had the honour of placing those very colours in St. Mury's Church, Warwick, in 1859.—E. C. Capt. 24th."

Laurence Archer gives an interesting account of the rallying of the 24th outside Chillianwallah by remnants of companies, and the return of the few remaining men of that regiment to the fighting line.

The rest of the battle-field gives no clue to any particular incidents, and all one can do is to imagine this line of brigades advancing simultaneously, but soon losing direction in the jungle, emerging just in front of the Sikh guns, and fighting its own desperate bayonet fight, supported so far as possible by such of the British guns as could force a way through the scrub. Contemporary accounts describe the enthusiasm of the first advance in line. (Thackwell and Laurence Archer).

The losses amounted to 2,338 killed and wounded (of whom 22 British and 16 Native officers were killed, and 659 men killed or missing), and were fairly well distributed through all corps, European and Native. The fears openly expressed that the *Poorbeah* regiments were in league with the Sikhs through the *Poorbeahs* in the Sikh regiments appear to have been quite unfounded.

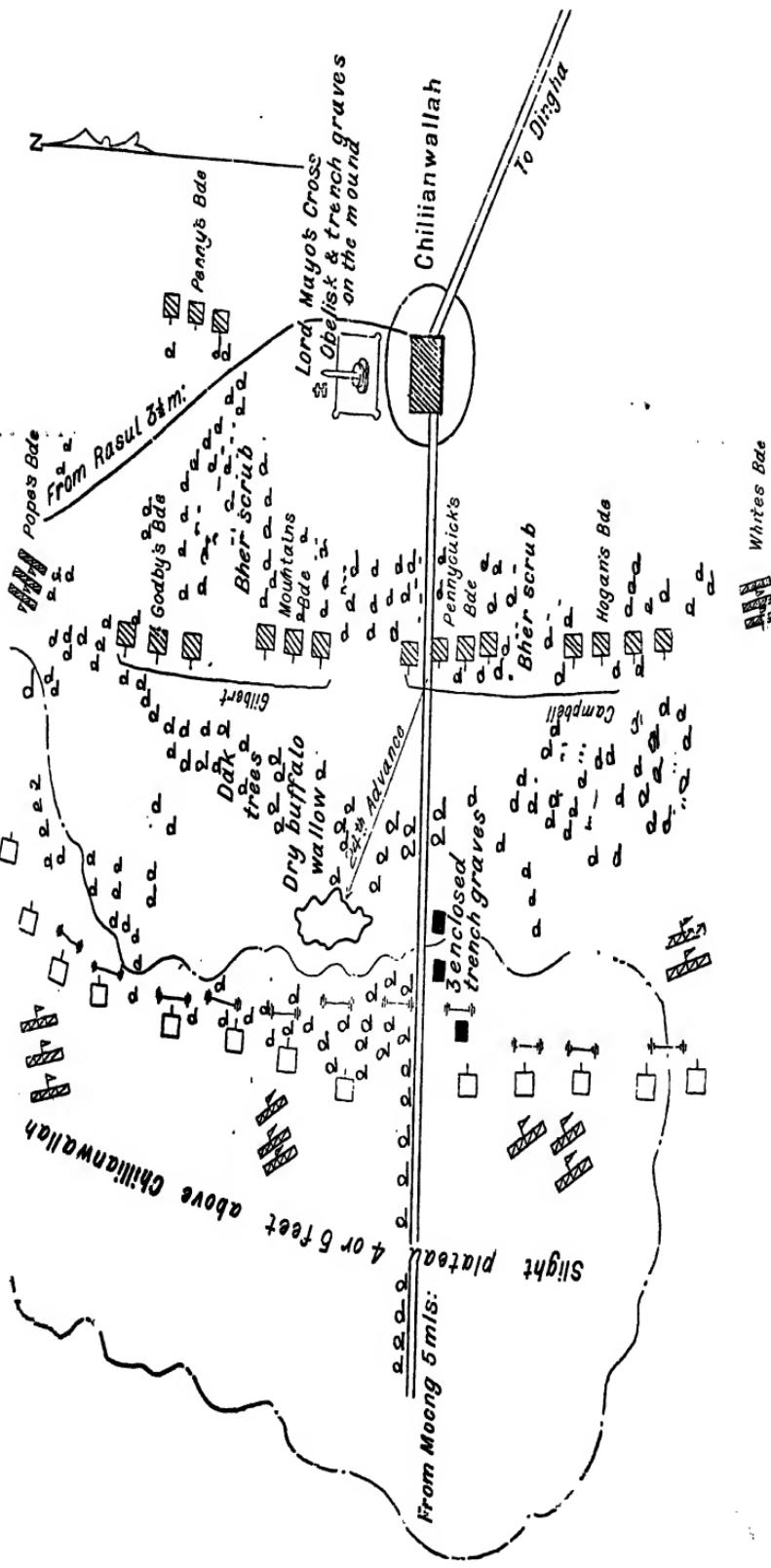
The Sikh losses were very heavy also, and to this day the people round will tell you, as Lord Gough always averred, that it was at Chillianwallah they were beaten, and that Goojerat was a walk-over. The fight was to a great extent with the regular Sikh army, clothed something like our own men, and till recently trained by Europeans. There is no doubt that they were heavily drugged. One account mentions a dead Sikh gunner with a bottle of spirits tied to his wrist. Their gunners died at their guns, but though almost all their guns were at one time in our possession, only 12 of the lightest were secured.

The confusion following the battle may easily be imagined. The baggage of two divisions and three cavalry brigades was around Chillianwallah, guarded only by one cavalry brigade. The troops found their way back to camp after dark; there was no defensive position; all was a tangle. Lord Gough apprehended an attack on his camp by the Sikh irregulars, and to add to the misery it came on to rain—the cold rain of a Panjab winter.

All night long the Sikhs roamed the deserted battle-field, withdrawing their abandoned guns and massacring any British wounded they could find. There is one pitiful story of the doing to death of a very minute wounded English drummer boy. Most of the dead were slashed across the mouth, and the ghastly grin their faces presented was a horrible sight. Most of the bodies had been stripped, and the marble-white of the European corpses after the night's rain, was in ghastly contrast to the black of the natives. Many of the stripped bodies seemed to have been dragged through the thorns bushes, so much were they torn.

An attempt was made to collect the dead at the Chillianwallah mound, and a great many are buried in the long trenches there. A contemporary account however tells that camels were sent out to collect them, and that before long the indecent sight of corpses

BATTLEFIELD OF CHILLIANWALLAH.
DECEMBER 1910



lashed on the camels coming into camp, was too horrible and demoralizing, and that the remainder were buried out where they fell. This explains these three large nameless graves on the south of the Moong road.

The big graves on the mound are well cared for. There are several long trench graves covered with masonry, and one or two individual graves. The whole is within a double enclosure, and a high red sandstone obelisk with inscriptions is a land-mark for many miles round. Outside the enclosure is a handsome cross erected by Lord Mayo, on which are inscribed the names of all the officers, British and Native, who fell. The ages of two old subadars is given, one being 70, and the other 65, both, by their names, Brahmans of Onde. In their days the oldest soldier in a battalion of Bengal Infantry was the senior native officer, and he served practically till he died.

There is little more to be seen on the ground. It is interesting to notice that the dreaded ravine at Rasul, "several hundred feet deep," is not more than 150 feet deep, and, running out at right angles to the position, was not an effective obstacle.

How the two armies spent many days watching each other, and re-fitting, and how the Sikhs then slipped away by the Khoree Pass to Goojerat to their complete destruction, is all well considered history, but it is fascinating to go over it all on the ground. Here and there some old villager will still be found who has some scraps of memories of the fight. One will have helped his father carry chappaties to the soldiery. Another can only say "It was a famous victory."

Armies do not like heavy casualties without complete victory, and loud and deep were the grumblings after Chillianwallah, though always drowned by the cheers of the men, whenever the little white-haired chief appeared among them, and all and sundry rejoiced at the complete success of Goojerat (or 'crowning mercy' as the wags had it).

REFLECTIONS ON THE TRAINING AND REGIMENTAL INSTRUCTION OF THE INFANTRY OFFICER.

BY A C. O.

*"I can easier teach twenty what were good to be done, than
be one of the twenty to follow mine own teaching."*

Merchant of Venice.

When carrying out the instruction of their officers perhaps the above words occur to other C. O's as often as they do to the writer. It is vastly difficult to make the lessons sound, interesting, and above all, *convincing*; also to impart them so tactfully that Pope's lines are fulfilled, where he says:—

*"Men must be taught as if you taught them not,
And things unknown proposed as things forgot."*

When I was a subaltern there was seldom any attachment to the other arms whereby officers gain so much in professional knowledge, bringing home to them, as it does, many points characteristic of another branch, which cannot be learnt from books.

Nor was the responsibility of C. O's. in this instructional question insisted on. But, their *mission* in this matter—for it can be called nothing else—appears to the writer by far the most important of all their duties and, above everything, the most difficult. Bearing this in mind I feel constrained to put my reflections on paper and attempt to explain what I expect my officers to know, and also some points which, presenting difficulties to them and to others, are frequently left ungrasped.

During the last three years I have been exceptionally fortunate in serving under generals who have taken immense labour really to teach one. In addition, I have had the rare opportunity of intimate association with some of the ablest officers the Army can produce. That I must have imbibed many of their views is only natural, for I made every endeavour to absorb all that was sound in their teaching—and to my mind there was very little that was otherwise. Such is my excuse for venturing to write this paper, and my reason is that thereby I may possibly benefit my brother-officers who have not had the same advantages.

Much of what I have to say will be found somewhere in our various hand-books. These require careful study. Take the foundation of many, namely, Field Service Regulations, Part I. This little book consists mainly of crystallised principles difficult to take in at a glance. They require to be thought over, discussed, and made generally interesting by references to military history applicable to the case in point. This engages the attention of officers and prevents them seeking for such rubbishy stuff as "F. S. Regulations Made Easy"

and the like publications—works put on the market by “crammers” and advertising firms who hope to create a sale out of the pockets of nervous candidates for examination. Let us cease being an “evil generation looking out for a sign” and requiring a rule of thumb for everything. The general earnestness of the present-day officer and his desire to perfect himself in his profession is very manifest. The young officer who has not the Staff College in his eye is almost the exception. The regret of those who have missed the chance of Quetta or Camberley is daily heard. Of the latter I am one. It is a loss I continually lament, but circumstances made it, in my day, impossible. Although I have done several years staff work, it is as a regimental officer, pure and simple, that I write these reflections. Manuals alone will not, of course, lead to victory, but we now see them issued on broader lines and confined generally to guiding principles. Let us accept the invitation to *think* more and to use our intelligence.

THE STAFF.

It seems hardly necessary to refer to the day—though I well remember it—when it was the fashion and custom for the regimental officer to look askance at the staff. It is fast disappearing. At the same time the much-to-be-desired bond of brotherhood is hardly in existence yet. The continuance of any kind of “clique” is so much to be deplored that it behoves C. O’s to assist in this matter and foster by all means in their power a spirit of friendliness—and not antagonism—towards the staff. Most of them are very good fellows and as hardworking a body of men as you will find anywhere. But they are only human, they cannot perform miracles, and on many occasions when they are be-littled or abused, the cause was none of their making and the effect entirely beyond their control. To the senior regimental officer who is keen, it may sometimes appear that the local training staff should be more in the saddle and less on the office stool. I refer mainly to the season when regimental training is taking place. Most good C. O’s would welcome their presence. It is quite possible they might learn at times more than they expected to. If so, as I found on the staff, it pays very handsomely to admit it. When combined with tact and judgment these visits would not only further uniformity of training, which is so desirable, but would also keep the staff in close touch with regimental matters.

LESSONS IN THE FIELD.

Our hand-books being fairly comprehensive, the action to be taken in various circumstances is generally to be found. What I want to attempt is a brief allusion to some of the many lessons learnt, or to be learnt, during training with the three arms, while at the same time trying to emphasise those points which would appear likely to be most instructive to the infantry officer, and are, moreover, matters that should be well within his cognisance. I

propose taking the three arms in turn, commencing with the cavalry, but must first refer briefly to three most important subjects, namely (1) information, (2) inter-communication, and (3) co-operation.

(1)—*Information.*

I am not referring here to information regarding the enemy but to knowledge of the movements and actions of our own forces. All soldiers must have experienced occasions when it has been impossible for the staff to publish the exact situation at the moment, yet it may be of vital necessity that it should be known to all units. Many officers in such cases lean entirely on the staff, and perhaps think themselves ill-used if kept uninformed. Von der Goltz in "The Nation in Arms," p. 177, says: "It may be laid down as a rule that each and every commander must himself provide the intelligence he needs." I maintain, therefore, that regimental officers must *find out for themselves* what is going on, and strain every nerve to keep in touch with their surroundings. Take a C. O. of an infantry battalion not actually engaged. He is personally responsible that he does the right thing at the right time. To do this he must know what is going on. Therefore it is his duty to take care he procures the best information, that is to say, he must exploit every possible and legitimate source, and not await the good pleasure of any one else to give him data without which he cannot act in the most efficient manner. A very distinguished general who put this before me has advocated the provision of an "information officer" in every unit, whose sole duty it will be to see that all lesser units are well acquainted with every situation. Devised originally in theory, this has been carried out practically with admirable results. Indeed, as regards information, we should get still more out of our officers, and by means that are full of interest to them. I refer to the employment of mounted officers of infantry and the staff, as well as cavalry patrols, to find out, especially at critical times, the dispositions and movements of the enemy.

(2)—*Inter-communication*

Enormous strides have been made here in the last two or three years, and the introduction of the "divisional communication company" has been a splendid move forward. But, as regards the infantry brigade, the section allotted to it from this company cannot do everything. I have seen it working up to a high standard, but at moments of great pressure the proportion of men and instruments is not sufficient to keep up rapid communication with all. Yet, at such times, it is of the utmost importance that every unit knows what is going on. Now comes the opportunity for the C. O. and his officers to *help*. Let them think continually of others, see that every particle of news is passed on, and that their own particular unit is in touch with all troops on every side. Let them remember that, although no opportunity of nursing the men, so as to keep them fresh, should be missed, officers themselves can never rest.

(3)—*Co-operation.*

So intimately associated is this essential with "inter-communication" that the two are inseparable. Failing the latter, then co-operation is impossible, except by accident. It seems also necessary to divide co-operation into two parts, namely, (*a*) steps to be taken to bring it about; (*b*) what it really consists of. As regards (*a*), do we all take such steps? I hardly think so. Numerous instances come to mind, of units, even of the same arm, being supremely indifferent to the actions and movements of other bodies of their own force. To me it has been quite an exception to receive from other troops—especially those suddenly ordered to move—a brief account of what they are doing or are going to do. Seldom on taking up fresh ground does one obtain from those around the dispositions that exist. Therefore let every officer *help* and so establish the principle of altruism. This brings us to (*b*), for it is exactly what "co-operation" means, namely, acting for the interests of others. Here again I ask a question—Does each commander of a unit, say, at manœuvres, think mainly of his own side and how he can best co-operate? Perhaps, again, the answer is in the negative, for we seem mostly to work for our own hand and to forget the WHOLE. I may be wrong, but this is what strikes one, especially when the three arms, or two of them, are combined. In our Army the battery, regiment, or battalion, is admittedly the best-trained unit. Generally speaking, the higher we go the more we fall off. Some years ago it might have been attributed to the strangeness of troops to one another and to their commanders. Now, however, that divisions and brigades mostly train together as they exist, this excuse cannot be accepted. Is there anything in the suggestion that the decrease in value is due not so much to any omissions of the generals or the staff as to the want of co-operation on the part of the lesser commanders? Working in brigade, for instance, can every C. O. truly say that he is *not*, during, combined training, almost exclusively concerned about his own command and jealous of the *kudos* he wishes it to gain? If he cannot, then, the cause being known, the remedy should not be difficult to apply.

CAVALRY.

Firstly, every officer should know "the subdivision of cavalry and the nature of duties to be performed." To do this he has only to read Cav. T., Sec. 144, and F. S. R. I., Secs. 65 and 91. Having done so, besides learning when concentration is necessary and how the service of security demands a wide front, he will understand as follows:—

Firstly.—That the *independent* cavalry is so called because it is under the chief commander alone and is not a portion of any particular force. He will compare it probably with Napoleon's Reserve Cavalry which was always kept for special tasks under his direct orders. He will see that its duties are entirely exploratory, that its

mission is to gain information, and that, to be successful, it will generally have to fight. Formerly many believed that independent cavalry was only used at the beginning of hostilities. A mistaken idea, for it is now clearly laid down that in the final phase of the operations, "it will co-operate with the other arms in securing the defeat of the hostile army." *

Secondly.—As regards *protective* cavalry, he will learn that it is under the orders—not of the C.-in-C.—but of the commander of the force it is protecting. Its duty is to cover the main army, and it cannot therefore get away from it. A glance at the home organization seems to show that, in war, *protection* will be left mainly to the mounted infantry. I say this because we find two M. I. companies allotted as divisional cavalry; and for protective cavalry, two mounted brigades consisting of four M. I. battalions, two regiments of cavalry, and two batteries, R. H. A. For independent and protective cavalry in India I think we have eleven cavalry brigades (two being Imperial Service Troops), or 132 squadrons in all.

Thirdly.—The *divisional* cavalry, he would see, is under the divisional commander. Its duties are enumerated. It would be well to note that in India a regiment of four squadrons is detailed for each infantry division. This provides security, connection, and mounted orderlies, etc. If two or more divisions are acting together it may be unnecessary to have eight or more squadrons, and therefore those not required might be formed into protective cavalry. I am told it is as well to decide this early in the operations to prevent friction and other difficulties.

I next come to *reconnaissance*, concerning which there are many points the infantry officer should understand, and Chapter VI of our cavalry book is doubtless closely studied by any one interested in scouting. I wish indeed for readier reference we could have the greater portion of it embodied in our Infantry Manual. It is of course possible, in the future, that aeronautics may relieve cavalry of much of its reconnoitring work. Great progress has already been made on the continent by aeroplanes, and it will be very difficult to hide anything from them. But taking our regulations as they stand, it seems most desirable that officers of all arms should know what may be fairly expected from reconnoitring cavalry, and the names of the various detached bodies. We are all aware of the fact that what a commander requires is information and always information, but it is unreasonable to blame cavalry on tactical field days, if little is obtained of value in an hour or two's time, concerning an enemy only a few miles distant and with cavalry of his own equally on the alert to prevent information being obtained. Henderson, in his "Science of War," tells us that great commanders did not dream of relying on cavalry alone. What we should expect from them, therefore, is a confirmation of the intelligence officers' reports, a security against surprise, and a determination to take every advantage of surprise

themselves. To fulfil the first part of their mission they will have to fight, and thus we find cavalry officers and our regulations laying much stress on concentration of force. Before proceeding to the question of patrols, etc., I might remind officers of two points they may miss. One is the necessity for officers of artillery and general staff accompanying cavalry reconnoitring patrols, and the other is the great value of a *personal* reconnaissance by the O. C. force. This latter is occasionally omitted, but, except with very large forces, it seems impossible to overrate its importance. It may be well to remember also that each new situation probably demands a fresh reconnaissance.

The excessive nomenclature applied to the various cavalry reconnoitring bodies is very puzzling to the infantry officer, and it may make it simpler for him to divide them into two classes, namely:—

“A.”—Those which procure information and are therefore *offensive*.

“B.”—Those which protect against surprise, i.e., *defensive*.

Cavalry Training gives us six different kinds of patrols, *viz.* :—

- (1) Strategical.
- (2) Tactical.
- (3) Attack, or galloping reconnaissance.
- (4) Protective reconnaissance.
- (5) Combat offensive.
- (6) Combat defensive.

It is hardly necessary to deal with them separately as their duties are detailed clearly enough. It should suffice to add that the work of (1) and (3) is generally entrusted to officers: that (2) are supported by contact troops or squadrons: that (4) regulate their movements with reference to the force they are covering, as indeed the term implies: that (5) are sent towards the enemy and frequently supported by one or more squadrons: and that (6) are dispatched in the direction the enemy is *not* expected.

What strikes the layman is the immense difficulty of collecting so many detachments at the decisive point. Except No. (6) all must come in before the battle, and Cavalry Training lays much stress on the necessity, not only for economy in these duties, but also as regards rejoining at once when the task has been accomplished.*

The question of *raids* is very fascinating to the infantry officer, especially after reading the American Civil War. He is apt to conclude that nothing pays like them, and in some cases to mistake certain actions for raids, which were in reality the best kind of tactical reconnaissance. Many continental writers advocate them from the very opening of hostilities. Our cavalry manual barely refers to them and that is on page 186. General French in his preface to Major Bridges' 1910 translation agrees with the German regulations which state:—“Enterprises of long duration by large

"bodies of cavalry against the enemy's lines of communication "separate them from their principal duties. Such raids are to be "undertaken only when cavalry is redundant. Sufficient ammunition "and supplies must be carefully arranged for." It seems to be generally accepted with us that, firstly, they should seldom be attempted during the introductory or preparatory phases, or until the mastery over the enemy's cavalry has been gained, and secondly, that they should be confined to small bodies, on account of the difficulty otherwise of surprise and rapid movement, the two essentials for such an enterprise. I do not of course refer to a vast strategical movement of a large body of cavalry, say, a division or more, which by using its mobility could suddenly place itself in a totally unexpected quarter of the theatre of war. This might entirely upset the enemy's plans, as is pointed out to me by an extremely able and well-informed cavalry officer, to whom indeed I am much indebted for many valuable hints regarding this arm.

Cavalry Fire Action --This brings us to the question of shock *versus* fire tactics, concerning which much has been written lately. Officers ask to be instructed in the matter, and discussing it amongst themselves invariably take a side. This is perhaps only human nature, for many are moved simply by some article which appeals to them. The writer has always maintained there is plenty of room for both, and is somewhat gratified to find now that—put very bluntly —this is exactly what has been settled for us. That is to say, both shock and fire action have been definitely given their special uses, and are now relegated to their proper relation to each other. Let me quote from the Memorandum of Army Training in India, 1909-10, page 2:—

Owing to developments in fire-arms the value of shock tactics has recently been questioned in certain quarters, and it has been suggested that cavalry, instead of charging mounted and using cold steel when opportunities for so acting occur, ought to dismount and use the rifle. It is therefore necessary to remind officers that similar discussions have periodically taken place in times of peace ever since gunpowder came into general use. The moment, however, war came, the fallacy of such theories became apparent. The fact is that warfare has never been mechanical and that the human factor predominates in battle. The hand-to-hand fighting in Manchuria is a further proof, if further proof were needed, that the fundamental principles of war do not change, and that in all great decisions between equally resolute adversaries the bayonet is as necessary a weapon in modern war as in the days of Napoleon. So must it be with cavalry and cold steel. His Excellency therefore directs that in the training of cavalry there must be no departure from the principles governing the leading of the army in war as laid down in Field Service Regulations, and in Cavalry Training. The following extracts from the latter manual are of special importance.

"The fact that cavalry is now armed with a long range and rapid firing rifle has endowed it with great independence and extended its power of action." Therefore "thorough efficiency in the use of the rifle and in dismounted tactics is an absolute necessity. At the same time the essence of the cavalry spirit lies in holding the balance correctly between fire power and shock action, and while training troops for the former they must not be allowed to lose confidence in the latter. Experience in war and peace teaches us the average leader is only too ready to resort to dismounted action which often results in acting defensively. It is of importance to lay stress during peace training on the necessity for offensive tactics for cavalry even when fighting on foot. It must be accepted as a principle that the rifle, effective as it is, cannot replace the effect produced by the speed of the horse, the magnetism of the charge, and the terror of cold steel. For when opportunities for mounted action occur, these characteristics combine to inspire such dash, enthusiasm, and moral ascendancy that the cavalry is rendered

irresistible. It is this that explains the success of many of the apparent "impossibilities" of cavalry action in the past.—*Cavalry Training*, sec. 141.

Quotations from other authorities are also of great interest.

The German Cavalry Regulations say:—"Cavalry will often be obliged to clear the way for further activity by means of dismounted attack." That is to say, a weaker side would probably avoid a mounted encounter and hide near impossible ground or behind strong positions. But it is not only in a direct attack that dismounted fire action could be usefully employed offensively. There are the occasions of surprising a camp: co-operation with infantry in battle: combination with mounted attack against cavalry or artillery: opportunities for harassing columns on the march, etc., etc. And in the defence, to defend a post: to delay the enemy in a retreat: protect artillery in action: hold a tactical point secured until infantry arrive, and so on.

Our Cavalry Training Manual explains that squadrons must be able to attack on foot, "*when the situation imperatively demands it*,"* and continues by alluding to a numerically weaker side driven to dismounted tactics and skilful manœuvring.* It also comments on the fact that "dismounted action often results in acting defensively,"* and, by way of encouraging the offensive spirit, lays stress on the necessity "for offensive tactics for cavalry even when fighting on foot."* The method advocated is to approach *mounted*, under cover, to within as short a distance of the objective as feasible and then suddenly attack on foot † A reference is also made to the fact that cavalry has no *depth* and to the necessity of the commander being able to break off a fire fight at will.‡ This must be very difficult and within effective ranges, almost impossible unless the ground is exceptionally favourable.

Bernhardi says :—

"Dismounted action, if carried out deliberately and on a large scale is a heavy pledge to fortune. The advantage to be gained must therefore be judged in true proportion to the inevitable loss." And again, "The best leader is he who holds the true balance between fire and shock."

Colonel De Lisle writes :—

"For one occasion that two forces of cavalry meet with steel there will be many encounters where one side will act on the defensive with the rifle. Their opponent will then have to consider what course to adopt:—

"(a) If more than twice as strong he can surround the weaker side.

"(b) Combine fire action with a mounted attack.

"(c) Refuse to fight.

"The most perfectly organized and carefully trained squadrons in mounted action will be found at a disadvantage even against well led irregulars until they have mastered the details of dismounted tactics."

Denison says:—

"The American Civil War teems with instances proving that their mounted riflemen were able to do what it is said European cavalry have often failed in, namely, to act with boldness and skill both on foot and on horseback."

Let infantry officers ponder on the above and they will not be misled. Let C. O.'s. of all corps instil into their officers the fact that it is better brain work for their juniors to search for the reasons which lead to the acceptance of tactical principles than to be ever ready to criticise them when published by authority.

While discussing dismounted fire-action it seems fitting to refer to the cavalry fire-arm. Should they not have the automatic rifle as quickly as possible? Our strength in mounted men is very small, and their fire tactics are essentially those of surprise, when their weapons should be capable of pouring in a terrific fire in a few seconds. Regarding the question of "rapid fire" and also that of "machine guns with cavalry," I find certain notes in my pocket-book the authorship of which I cannot call to mind. I may have copied them from some article or some Hythe memorandum, or have made them up after some lecture. Anyhow they seem to me so weighty that I venture to quote them here:—

Rapid Fire.—"It is false reasoning to connect rapid firing with the ammunition supply. It is a means of developing surprise tactics and reducing vulnerability. If properly regulated it *saves* ammunition and produces a much higher percentage of hits to rounds than slow fire. Men do not waste ammunition in war through rapid firing unless they suffer from panic. Moreover the natural inclination is to lie low and abstain from firing."

Machine Guns with Cavalry.—"The machine gun is essentially a cavalry weapon but not always so looked upon by cavalry officers. The object of the enemy may be to compel our cavalry to lose their rôle and dismount. The weaker side in cavalry tries to hold up their mounted opponents and compel them to get off their horses. We as a nation require machine guns with independent cavalry to prevent any sacrifice of mobility. Again R. H. A. requires escort. Machine guns can do this without taking men away from the scanty squadrons, for machine guns can await the attack of cavalry with the utmost confidence."

ARTILLERY.

Infantry officers attached to this arm pick up a certain amount of information about fuzes, ranging, positions, how to approach, etc., but other points might be more deeply considered. For example, the employment of horse artillery with cavalry.* Officers should know the rôle of the former when shock tactics are to be employed, as well as the support it can give to dismounted cavalry.

They should understand that a cavalry fight being imminent, the general with his horse artillery commander will gallop forward for a personal reconnaissance. That when his plan is formed his first intimation of it will be to the artillery. Why? Because that arm has preparations to make; for the selection of, and approach to, positions take time. Events move with extraordinary rapidity in these actions and *surprise* is as necessary for horse artillery as for cavalry. We read, "with field artillery, concentration of fire combined "with dispersion and concealment of batteries is the object sought "for." But, when employed with cavalry for shock tactics, horse artillery must *mass*, or there will be every chance of *masked* fire, than which no enormity is greater. The object is to get the fire of the guns directed at right angles to the line of the charge, firstly, that their fire may not be masked, and, secondly, to enfilade the hostile cavalry.

It should be realised, too, that the 13-pounder cannot be gaily galloped over *natas* as was the old 12-pounder; but that it is mobile enough if treated with a little thought and given a forward position in the column. As a high authority says:—"Any loss of mobility "can best be obviated by having guns where they are likely to be "wanted before the tactical shock is delivered. Hide the guns when "ground admits, pivot on them, and, above all, make sure their fire is "not masked."

Field Artillery (including mountain and heavy artillery).

A matter in which infantry officers attached to artillery might help somewhat is with our old friend "inter-communication." Those I have conversed with have hardly fully realised the necessity of all battery commanders giving information regarding ranges, position for any series, and all changes of position, to the nearest infantry, in the same way that all infantry commanders should make known their dispositions and instructions to all artillery within reach. I emphasise this point, for perhaps nothing would tend more to bring home to artillery officers the question of mutual co-operation than constant inter-communication with the infantry.

Some officers still hold erroneous views regarding the action of artillery in the battle and look upon its opening fire as a separate phase, forgetting—as is laid down in our manual—"that the object of its fire is to assist the infantry advance."* Strange as it may seem, this misconception is not uncommon, though we are far from the days when artillery employed dense fire with "case" at short ranges just before the infantry charged. This, because their smooth-bore guns were not much good over 400 yards. Artillery must now prepare the way and support the infantry during the whole of its advance. But all this is now illustrated for us so clearly in our manuals † that it is surprising that two distinct phases can be referred to.

* F. S. R., I., p. 115.

† For example, pp. 216, 217, F. A. T.

Some officers, but not all, have begun to cultivate the habit of watching artillery closely, so that every opportunity of *gaining ground* may be taken advantage of.* If not practised in peace, shall we be prepared to move on in war, until the decisive moment has passed?

A question often asked at manoeuvres is,—supposing artillery of fairly equal strength in attack or defence is engaged, is it practicable for either to range on the hostile infantry before the guns of the enemy are silenced? The answer is, that to fulfil its mission it certainly must do so.† Let me quote Field Artillery Training.‡

"Should the artillery of the attack have been compelled to cease fire on account of the superiority of the enemy's artillery fire, it must re-open at all costs to assist the infantry to deliver the attack or repel a counter-attack." And the same in the defence.§ As a keen, earnest battery commander once said to me, "if I can induce the enemy's guns to open at me and if I can fire to assist the infantry attack, or against the counter-attack, I have reached Nirvana."

INFANTRY.

Scouting.

It often happens that the classes of scouts referred to in Infantry Training are confused by officers, though their duties are quite different. It is not always remembered that the 2nd class, or, as he is often called, "company scout," is to be mainly employed in the simple duties of feeling the way, etc.,|| while the 1st class are required for more advanced work requiring a very high training. The latter indeed should be a most valuable adjunct if well taught and made to understand that "when touch is once gained with the enemy it must never be lost." They must therefore be absolutely self-contained, prepared to stay out on their own for some days and nights, and expected to send back constant information, both negative and positive. Such work is very trying and the men require to be most carefully *nursed* when off duty. They should be allowed all the rest they can get, and be given conveyances, such as ekkhas, tum-tums, ponies, etc., when possible to procure them.

Each officer in charge of scouts doubtless knows thoroughly Chapter VI of Cavalry Training and teaches it to his men. When working with troops he must never be in a hurry regarding the information he transmits to higher authority. It should be *most carefully sifted*, and if there is the slightest doubt about any point being an actual fact, let him eliminate it altogether, or so express it as not to mislead.

The writer is a strong advocate for mixed scouts of the British and Indian infantry, and has always maintained that this combination, properly worked, has a future before it. The former can supply

* P. 217, F.A.T. and F.S.R., I., p. 116.

§ P. 219, F. A. T.

† For example, pp. 216, 217, F. A. T.

|| I. T., 87 (b); 132 (1), etc.

‡ P. 217, F. A. T.

the intelligence required for transmission of information and the latter, if carefully selected, the natural jungle instinct faculty of finding their way anywhere, and the capability of existing on their own resources. But experience has proved that much perseverance is required to make this experiment successful. Little progress will be made at first, for Western and Eastern races do not mix easily together in such homogeneous work, off-hand, and *time* must be allowed. Some essentials are noted for the benefit of those interested in this subject :—

- (1) The men must live together in camp for at least three weeks to get to know one another and understand each other's idiosyncrasies.
- (2) A good knowledge of semaphore and reading and writing in the Roman character.
- (3) A knowledge of ordinary Hindustani, much of which can be gained by the British soldier during the first camp. It is wonderful how quickly the two races manage to communicate freely with a most imperfect knowledge of each other's language.
- (4) A division of the combined scouts into permanent groups of five. Say, in the first group, three British (one as leader) and two Indian : in the second, two British and three Indian, and so on.
- (5) A continuation of this organization all the year round, with special missions and tasks for the men.

Reconnaissance is undoubtedly a weak point in our armour. Here we may have a partial remedy. There is another point. Besides the advantage to the individual soldier of such active, interesting, and useful, training, we help to bring together the two armies ; we bring selected soldiers of the one in direct contact with, and in a position to note the best characteristics of, the other—those that *count*, and which evoke respect and admiration—and lastly, we do our best to foster a good feeling between the races of East and West, which is surely most desirable.

Machine Guns.

During the past two years a great deal has been written on this subject, so officers can form their own opinion as to the general utility of machine guns and their tactical employment. "The machine gun is essentially a weapon of opportunity," was the first thing we were taught at Hythe. Although this has become a parrot cry, it is the gist of the whole question, for the M. G. commander must ever be on the look out for a good target and then act vigorously by surprise. The points he must guard against in the field are—(1) a temptation to get into the firing line ; (2) any hesitation about employing covering fire, overhead, if necessary ; and (3) neglect to conceal his guns, especially in the defence. It is quite impossible to reiterate these points too often. As regards massing

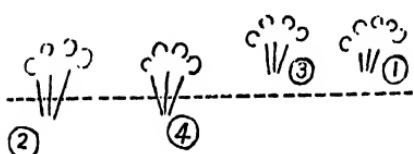
versus dispersion, it may be best to say, "*in medio tutissimus ibis.*" We *may* want to brigade them in war, therefore we must practise them brigaded in peace. But not for months together. Once or twice a week under the same officer is sufficient. At Hythe they used to say, "for long ranges * they should be massed and for short ranges dispersed. In battles of encounter guns dispersed in pairs would probably find more opportunities." But the country and nature of the operations must also be considered, for there will be occasions when to employ them regimentally would be impossible, and others when to brigade them would be a mistake.

Battle Formations.

It is now realised that within effective rifle range the advance must be conducted in small mobile columns of fours or file, or single file, according to circumstances, but what one does not always see is a *broken front*. If the first line maintains any kind of dressing, the rear lines follow suit, and you give the enemy's guns just the target they like. A very discerning artilleryman I have consulted cordially agrees with me and gives me diagrams in support, which I reproduce below:—

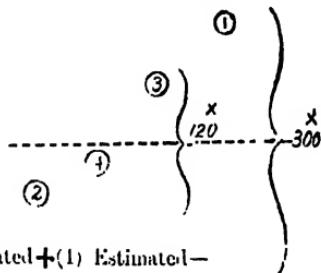
EXAMPLE I.

As seen from the front.

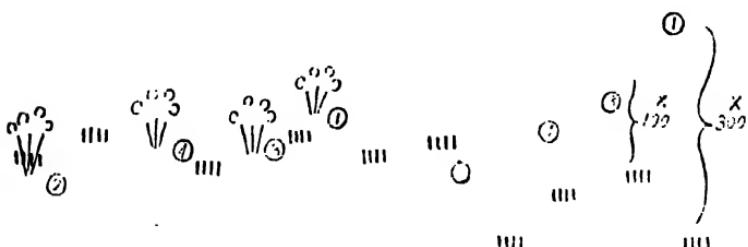


(1) Estimated + (2) Estimated — (3) Estimated + (4) Estimated —

As seen from above.



EXAMPLE II.



(1) Estimated + (2) Estimated — (3) and (4) Estimated.

* See I. T., Sec. 167 (c) (4).

These examples apply equally to a moving or a stationary target, i.e., I, an unbroken front at equal range all along, whether an advancing line or a line of trenches; and, II, a broken front at unequal ranges, whether small columns advancing or trenches so placed.

In example I, the gunner can judge + or -, and get his bracket with ease. The smoke is seen to be either in front of or behind the target.

In example II, he has got a + and - with his first two rounds, but only as regards the rearmost portions of the target. Rounds (3) and (4) falling in gaps between portions of the target are difficult to make anything of. Result, if he thinks he has got the range he is wrong, and his shell will practically all be over and harmless. If he is not satisfied, he must go on ranging and so waste valuable time before getting to "effective fire." Is example II exaggerated? How can you tell line from echelon, with a broken front, at 3,000^x to 4,000^x, and how often does the ground help to deceive the eye? We see even at practice camps apparent trifles disconcert the battery commanders, such as a trench lying back at an angle instead of being parallel to the front of the battery. How much more will this be so on service?

I have also asked artillery officers to remain on some prominent feature while I attacked it in different formations, and small columns in file on a broken front were declared to be by far the most difficult target. In fact the more you can break up a front, the harder it is for the gunners.

Entrenching in the Attack.

It was a matter of some surprise to many of us that, although the Russo-Japanese war was being fought when the last "Infantry Training" came out, no mention was made of this. True, it was referred to in "Combined Training" of the same year, but the first issue disparaged the construction of entrenchments under fire. Later an amendment was made to each Manual, which F. S. R. I. confirms. The quintessence of it is completely expressed by a distinguished general the writer has had the honour and good fortune to serve under, who said: "Don't stop to entrench, but entrench if you have to stop."

Officers should also grasp the fact that there are other things besides the enemy's fire that may necessitate a pause. Then entrench. Rear lines also should do so at such times and without waiting for orders.

Miscellaneous (Battle).

Such points, as (1) the frontage in battle being apportioned according to ground; (2) officers being always on the *qui vive* to afford mutual support; (3) necessity of reinforcements carrying up fresh ammunition for the firing line, etc., etc., should always be kept in mind.

Outposts.

Most of us, as outpost commanders, content ourselves with a line of passive resistance. That is to say, we should consider we had done well in distributing our troops in such a manner over the allotted area that, with good communications, it appeared impossible for any formed body of the enemy to pierce the line or to attack successfully by surprise. But would it not pay better to be more aggressive, giving equal attention to this as to the line thrown out to provide security? Aggressive action indeed would appear of itself to give you security. Imagine the *moral* of an enemy continually harried, and the elation of your own troops at being able so to tire them. Of course, everything must be kept within bounds, and here again we have to guard against the danger, so common with us, of running to extremes. We are told in our hand-book that the "first duty of the outposts is reconnaissance."* To perform this successfully, it will often be necessary to be aggressive. This was brought home to the writer once at manœuvres by the outpost activity of an enterprising opponent. It seems worth trying, and might prove a useful experience for war.

ADVANCED GUARDS.

It is rather the exception than the rule to find an advanced guard to a small force really well handled. It is a difficult duty no doubt, and frequently--in spite of the stress laid on it in F.S.R.I.—the commander is hampered by ignorance of the intentions of his general and by lack of instructions regarding his action should the enemy be met with in force. Another matter worthy of note is the allusion we get to *frontage*; and this is equally applicable to large or small forces. The ruling on this point is clear,† but it is perhaps seldom, even when offensive action is contemplated, that we see an advanced guard deployed on a broad front. The advantage when within striking distance of the enemy, is obviously immense, not only to supplement the information supplied by the mounted troops but to assist them by infantry support. You may possibly prevent a superior hostile cavalry from seizing advantageous positions, and also, as we are told, "secure any tactical points which may assist the development of the attack of the main body."†

NIGHT WORK.

Of late years in India many divisions have done a good deal of this, and perhaps, in face of possible future action on service, should do a great deal more. It is not pleasant work, and few like it, but the mistakes that occur during training show how necessary is its frequent practice. The selection of slack and temperate seasons for carrying it out makes it less irksome, and every single performance

teaches one something new. Officers have ample rules and principles to guide them, but many points that require special emphasis may be commented on :—(1) *Orders*. All orders and directions have to be extremely clear and much fuller than usual, for one's motto should always be—"Leave nothing to chance." (2) *Formations*. May be according to common sense, but lines of fours or company column at deploying interval seem sound and work well over difficult ground. In case of surprise, etc., the men would automatically form to the front. We are told * the force may be divided into three lines, and in doing so it is well to remember to place the second line *en echelon* on the more dangerous flank. The third line may be posted similarly, on one flank or the other. The disadvantages of having one line directly behind the other are obvious, and carefully to be avoided. The third line or reserve takes "tools or special appliances."* Experience has not always proved this to be very successful. The reserve may have to be diverted, or distribution in the dark may be most difficult. Why put all your eggs into one basket? It has been proposed by one who ought to know, that the rear section of every company should usually carry tools with the blades wrapped in sand-bags to prevent rattling. This seems an admirable suggestion for ordinary occasions. Your tools are proportionately distributed. When each company deploys, it does so with three sections only, using the fourth as company reserve. In an emergency the latter could drop the tools and enter the fight, still having the tools close by when the position was taken. The sand-bags would be invaluable for entrenchments. (3) *Pace* should not exceed that laid down on page 166, F.S.R.I.; we are told not to expect more than one mile an hour. Infantry across country won't move faster, but calculations are sometimes based on quicker progress and plans thereby upset. (4) The *advance under fire* is perhaps the most difficult and important of all action at night. What are we told? "If after the position of deployment has been left, the enemy opens fire, all ranks should understand that it is their duty to press forward at once, cost what it may."† This cannot be too earnestly impressed on every one. There should be no firing, cheering, shouting, nor even any rush, until you are at hand grips. Simply a steady sweeping advance, carried out in dead silence. This gives nothing away, and how paralysing to the enemy's nerves. (5) The *delivery of the assault*, we are told, should be so timed "that the 'attackers may have two or three hours of darkness in which to 'prepare and organize their defence'".‡ Only much practical experience will exemplify the importance of this. Think what there is to be done; protection, shelter trenches to be constructed or reversed, and all the arrangements for food, water, ammunition, casualties, etc.,—all before daylight. It is on these occasions that the well-trained units come to the front; when officers, in the dark, get connection every-

* F. S. R., I., p. 166.

† F. S. R., I., p. 167.

‡ F. S. R., I., p. 163.

where, find out what is going on, and, exercising a proper judgment, think and act for themselves without waiting for orders.

In conclusion, I may add that I have not touched on the question of training for uncivilised warfare, about which there is much to be said. Situated as we are in India it is to be hoped that the pendulum will not swing too much one way, leading us to neglect continual practice of the plans and tactics mainly suitable for an encounter with unorganized tribesmen.

MECHANICAL TRANSPORT.

Extracts from a Lecture given at Calcutta, in July 1910.

BY CAPTAIN G. AYLMER, ARMY SERVICE CORPS.

Mechanical Transport is obviously a very technical subject, but I have no intention whatever of touching upon the technical part. All I wish to do is to give an idea of how mechanical transport is being used at home and abroad, and by foreign nations ; to outline the probable extent to which it will be used in the next big continental war ; and also to discuss its possibilities in India.

It has always been a maxim that for active service the transport to use is that which is locally procurable in the theatre of war, as, presumably, it has only been adopted as being suitable to local requirements. This must still always apply when it is a question of dealing with elephants, camels, pack-mules, etc., but our future wars are hardly likely to be exclusively confined to countries using pack transport, and it is the big continental and other wars that must be legislated for.

Times change, and the world, formerly content with horses, now propels itself with motors. The army must necessarily keep up to date and use the best possible form of transport available ; and there is no doubt that where mechanical transport can be used, it absolutely flattens out any other kind in existence.

The whole subject is a vitally important one as far as the army is concerned, and certainly cannot be dismissed in a few words on the ground that it is the work of the Army Service Corps, or Supply and Transport. Transport, which also naturally means Supply, is certainly the province of these two corps, but that can never alter the fact that the questions of supply and transport on active service, or manœuvres, have always been, and must always be, the first considerations for the general officer commanding and his staff.

Having no books out here, and no data of any kind, I have had to draw on my memory a good deal for facts. I think, however, I am right in saying that it was early in 1902 that mechanical transport was started at home, in quite a small way. The question arose as to whether we or the Royal Engineers were to have it, and no doubt if Sir Edward Ward—who was one of the pioneers of mechanical transport—had not been an Army Service Corps officer, and at the War Office at the time, they would have got it. We, however, anticipated the question arising, so that when the Royal Engineers pointed out that we had no men in the Army Service Corps who were mechanics, we were able to produce a batch of men who had just passed through a course in the Woolwich Arsenal workshops. This settled that objection, and personally I think it would have been a mistake to have given it to the Sappers. It would have

re-opened that vexed question of the divorce of Supply and Transport, which all Army Service Corps officers hope was settled once and for all when Sir Redvers Buller formed the present organization of the Army Service Corps and united the duties of transport and supply.

To give you an idea of the importance attached to mechanical transport by the authorities at home, I quote a few notes from a Parliamentary Blue Book on the subject of mechanical transport in the colonies.

On the 15th of August 1907, the Secretary of State for the Colonies wrote a circular letter to the Governors of all non-responsible government colonies and protectorates, on the subject of the increasing use of mechanical transport for the conveyance of goods and passengers.

In this letter the Secretary of State said that he was greatly impressed with the subject as it affected British colonies more particularly as regards our possessions in East and West Africa, and that he was convinced that their development was closely connected with the problem of transport and inter-communication.

A number of enquiries were sent out with the circular letter, in order to accumulate information upon which the Mechanical Transport Committee at the War Office could form an opinion of the progress of mechanical transport in the colonies, and advise accordingly.

The enquiries, which not only would apply equally to India, but are always gone into before mechanical transport is sent to any garrison town at home, embraced questions on the mileage of metalled and unmetalled roads, (here is the crux as far as India is concerned); the materials used for metalling; gradients; fords; strength of bridges; fuel and water-supply in the neighbourhood; the number and description of available workshops; the kind of motor vehicles that have already been tried in the district, and the success or otherwise of the trial, etc., etc. It may be pointed out here that it is essential to make a careful study of questions of this nature before deciding on a type of mechanical transport for any particular place.

As a result of these queries it was found that in Ceylon, Singapore, Barbados, British Guiana, and Trinidad all forms of mechanical transport could be, and in fact had already begun to be suitably and remuneratively employed. In Hong Kong, Bermuda, Jamaica, Gold Coast, Antigua, Windward Islands, Southern Rhodesia, Southern Nigeria, Nyasaland, and Uganda, the lighter tractor or lorry could be employed. In Mauritius, Seychelles, British Honduras, most of the Leeward Islands, Basutoland, Bechuanaland, North-West Rhodesia, Swaziland, Gambia, Sierra Leone, Northern Nigeria, East African Protectorate, Cyprus, and Somaliland, the introduction of mechanical transport was not, owing to various causes, such as unsuitability of roads, or lack of sufficient industrial development, considered advisable. With regard to Gibraltar and Malta the military needs alone require mechanically propelled vehicles, which is due to the fact that these two places are practically fortresses without industries.

From the foregoing remarks it will be seen that the question of mechanical transport has become one of universal importance, even if it has not up to date proved a success in India.

You may have seen in the illustrated papers some time ago a picture of the traction engine familiarly known as "the Caterpillar." This unique invention is quite unlike any other engine, and in this picture it is shown dragging a heavy gun across country. The experiments took place before some of the officials from the War Office and Gun Factory, Woolwich. The engine weighs 8 tons, is 70 horse-power, and uses a heavy oil fuel, its speed-limit being 8 miles an hour. Its method of locomotion is quite unlike any other, as in the place of wheels it has about 16 of what look like elephant's feet, on a continuous chain on either side. The chains work round like bicycle chains, and so it practically walks, and to some purpose too, as it can go in and out of the most break-neck places, and straight across country. At the particular trial shown in the picture in question the test was to pull a six-ton field gun across the soft sand of the Long Valley at Aldershot. It succeeded in taking the gun up and down the hill sides, over deep water-courses, the banks of which were very steep, and then across a wide stretch of boggy ground which was by far the stiffest test of all—the gun at times being up to its axle. The gun finally stuck in a deep ditch with straight banks, but was successfully hauled out by the engine, which unhooked, and then drew it out with its own steel cable and winding drum, but not before the cable had snapped with the tremendous strain.

It is said that the caterpillar is a successful experiment, but requires improving to become really practicable, as it is at present too noisy, and the chains of feet are apt to break. It certainly must have improved a good deal since I was at Aldershot at the end of 1908, as the engine then weighed about twice as much as this one. I had several rides on it across rough ground, and I don't recommend it to anyone who is not a good sailor. To look at, one would think it would be impossible to turn, but it can do this, in its own length.

One of its greatest advantages is the fact that instead of having a small portion of a wheel on the ground, cutting up and sinking in, it has the weight distributed over a large area, as about 6 or 7 of its feet on both sides are on the ground at the same time. I am not at all certain that when perfected it would not be suitable out here. The difference between this form of traction and the ordinary sort is the difference between one man walking through deep snow and another skiing over the top of it.

Though many questions have to be considered before a particular type of engine can be settled on for any one particular place, the general requirements of engines are practically the same in all cases, and they are very clearly defined. An engine must be suitably equipped, be capable of drawing a full load up a bad hill on a bad road, be easy to start, stop, and control, and must be able to pump up water for its own boiler from the usual source of supply found along country roads such as streams, ponds, etc. It must be

easily manœuvred in narrow places, sharp turns, etc., without taking trucks off. It must stand all kinds of weather, and the working parts must be protected from dirt. Weight has, of course, also to be considered on account of the roads, bridges, etc. All parts must be able to stand great strains. As an instance of this necessity, I put one of our biggest Fowler engines with three empty trucks out of action in the Long Valley at Aldershot. The ground was sandy and wet and finished uphill; it was at a junction of cross-roads and the only place available to make a complete turn. The engine got in the sand and showed signs of jibbing, so I turned on full steam suddenly and bang went the crank shaft, a very serious and expensive accident which would have been much more serious on active service with a 20-ton load behind. It brought one face to face with a controversial question, *i.e.*, small engines *versus* big, the argument in a case of this kind being all against the big engine, owing to having all one's eggs in one basket, as opposed to having them in four small ones, when, in case of breakdown, most of the cripple's load could be distributed amongst the other three. A similar engine had to be sent for to tow us in. Needless to say an expert wouldn't have done it, but it shows how easily vital parts can be broken, and the necessity for all parts being able to stand great strains. The engine must be mounted on springs to save the road and also the driver. Even with springs, it is not exactly a luxurious method of travelling. In addition to the heat and noise and jolting, the hot oil, steam, water, dust, and coal-dust all combine together with apparently but a single thought, that of blinding one.

All parts must be accessible for cleaning and inspection. Reserves of fuel and water must be carried. The engine should be able to travel as far as possible without replenishing either, and finally, if possible, it should not make itself objectionable to the general public in the matter of throwing sparks on to ricks and thatched houses, emptying small ponds or walls when filling a boiler, or dropping live coals when passing a house with straw outside.

Mechanical transport has, however, already been tried in India, and up to the present has proved a failure. Whether the list of questions, which I have already stated require satisfactorily answering before embarking on any scheme, were gone into, I am unable to say, but four big engines with trucks were ordered out from home. I believe they were very heavy, and quickly proved themselves useless. Two went to Khushalgarh, one to Peshawar, and one to Quetta, but owing to damage to roads and bridges they were withdrawn, and were eventually sent for use as stationary engines to the North-Western Railway, Lahore, and the Ordnance Department.

At Delhi in 1902, for the Durbar, there were four Thorneycroft lorries, and experts came out from home to drive them. These lorries are intended to carry five tons on macadamised roads and are very good at it; but at Delhi stores had to be taken across what was very nearly a ploughed field from the Central Depôt to various camps, and this fairly shook the entrails out of the engines.

Every man's hand seems to have been turned against those engines, and many complaints of frightening horses camels, and mules, were received, and other frivolous complaints. Landlords objected that their houses were being shaken, tenants to the smoke spoiling their gardens, and some roads were forbidden in consequence. Another disadvantage under which they laboured was that a Thorncroft lorry not only wants expert handling, but also first-class coal, and the stuff at Delhi being very poor, it was found impossible to keep up steam. In short, they were not a success; but the conditions were all against them.

It was a great blow to me to hear that these lorries had failed, because, before going into the subject, I had decided that the Thorncroft lorry was the one type likely to be suitable for India. The lorry and trailer only weigh $6\frac{1}{2}$ tons, the lorry carries 3 tons and the trailer 2. It is a compact and handy form of mechanical transport, self-contained in every way. The engine takes up very little space on the lorry, and all the remainder is available for the load. The engine requires very little water and soon stokes up. It requires, however, expert driving, as it very easily runs out of steam, and is rather too difficult to get at for repairs and cleaning. It is not the most popular type at home, as the wheels are small, but it is the lightest up to date.

Out of these four lorries three were then sent to Quetta, and every effort was made there to work them at a profit. Civil hiring from breweries, etc., was secured, but there was too much mule transport there for the lorries to be continually employed, and machinery standing idle means unproductive capital.

Not long after this, apparently four Ursula traction engines of 14 tons, and 2 Dolls of 10 tons, were brought out from home, and an engineer on Rs. 600 a month came out to run them, but they also were unsatisfactory. Honorary Lieutenant Hewitt, Supply and Transport Corps, and Captain Nugent, Royal Engineers, took two of these engines fully loaded from Peshawar over the Kohat Pass to Bannu, 120 miles. The Doll was a success, but the Ursula was too heavy for the roads. A tank of water holding 500 gallons was part of the load, but even then more water was required every ten miles, which would be a serious problem on active service, and the amount of coal required to be carried for long runs considerably reduced the weight of the useful load.* I believe one Doll pulled a heavy gun on manoeuvres at Quetta and did very well, but an experimental run from Quetta to Chaman over the Khojak Pass was disastrous, and resulted in an enormous bill for repairing the road. The other lorry drifted down to Calcutta, and every effort was made to find a place where it could be worked economically. The late store

* Though the lecturer does not mention it, it is believed that from the data obtained on this run, a report was sent home, and a large money prize offered, but that up to date no firm has been able to devise a tractor fulfilling the conditions. Being new to India, the lecturer has perhaps hardly yet realised that the roads in this country, even though apparently well metalled, will not stand the wear of a tractor, or that the effect of a *kuchha* road is to make a tractor upset.—EDITOR.

and shipping officer, the ordnance officer, and the Commanding Royal Engineer, all said they could not employ it economically. The cost of running the engine, including wages, fuel, oil, repairs, share of workshops, depreciation, etc., was calculated at Rs. 15 a day. The C. R. E. pointed out that 8 bullock carts, hired at Re. 1 a day each, could do the same amount of work, and were not paid by him except on the days hired. His calculations could only, however, have applied to the particular work he wanted doing, as 8 bullock carts could not carry 5 tons 18 miles to Barrackpore, for instance, and return the same day. The trailer and lorry were then lent to the Gun and Shell Factory, Cossipore. As a rule, they have 12 pairs of bullocks and carts from the Supply and Transport Corps, and according to the estimate of expenses shown by the superintendent of this factory, the engine and lorry was only costing Rs. 6-8-0 a day. If this had been so, a saving of roughly Rs. 250 a month would have been effected. Presumably, however, he did not include in his estimate the annual depreciation, and other items of a similar nature that have to be taken into consideration when getting a true statement of expenditure. It is obviously no good making a profit of £100 a year for five years if an engine costing, say, £500 has by then become scrap iron.

The Government of India finally decided that all the mechanical transport vehicles which had been under trial in India were to be sold, as it was found that they were unsuitable for active service, and their employment in peace was not remunerative. This was at the end of 1906. An attempt was then made to sell the one in Calcutta, and it was advertised in several papers. Big firms were approached with a view to their buying it, or even hiring it, but no one would touch it. It was then put up for auction at Mackenzie Lyall's, and some one made a bid up to Rs. 200, which was about the original cost of one wheel. It was then decided to hand it over to the Mint free of charge.

I now come to the latest attempt to introduce mechanical transport into this country (a purely private enterprise), and this was made by a civilian friend of mine, Mr. Buchanan, who, a few months ago, brought out three Renard trains.

The Renard system of road transport claims to be about the last word on road traction; it is very like a small train without rails. Its working capacity is enormous. It claims superiority over other forms of traction in the fact that it is light, speedy, and economical to run. The original outlay, however, is very heavy. In the Renard system there is no hauling or trailing (as with the ordinary form of traction engines and trailers), but each vehicle in a train is mechanically propelled, although there is only one motor to a train. There are three pairs of wheels to each truck, and the power is transmitted to each middle pair. Another advantage of this continued propulsion is, that should one or two vehicles of a train get into trouble in soft or bad ground, so that the driving wheels are unable to get a grip, and revolve idly, the driving wheels of the remaining vehicles, being

on good ground, would assist to get the others out of the difficulty. I should imagine, however, that a good deal of power must be lost in transmission. Another feature of the Renard train is its steering. Each vehicle is steered, so that it follows in the exact track of its predecessor, like a train on rails, but the driver has no more work to do in steering than a driver has in running an ordinary motor car. This steering is also the same when travelling backwards. A train composed of any number of vehicles can turn in a complete circle of 30 feet diameter, backwards or forwards. The Renard train, therefore, is suitable for traffic, and proved that in the busy streets of Calcutta. Each goods wagon has a useful carrying capacity of five tons, and each passenger carriage carries from 25 to 30 persons. Thus the usual train will carry a total useful load of 15 to 20 tons, or about 90 passengers. The speed of such a train on a fairly hard and level road is up to 12 miles per hour.

In order to test the difference in cost between the new and the old forms of traction, a Calcutta business firm called for tenders for the haulage of fifteen tons of coal, seeds, or jute, from Cossipore to Barrackpore, a distance of fifteen miles. The most reasonable offer received was one from Mr. Dutt, a big contractor. He used for the purpose thirty carts each carrying 10 cwt., or 14 mds., per trip. The time taken on the journey, from the hour at which the first loaded cart left until the last arrived at its destination, was 9 hours. The cost tendered for the journey was Rs. 4 per trip per cart, or Rs. 120 for carrying 15 tons fifteen miles. That is to say, the cost per ton mile by bullock cart was 8 annas 6 pices.

The Renard road train carried a similar load of 15 tons over the same route at a net cost of Rs. 19-8-2. The cost per ton mile was 1 anna 5 pices. The time of the journey from start to finish was 2 hours 15 minutes against 9 hours. In working out the cost everything was taken into consideration, depreciation, repairs, etc., and divided up accordingly.

The saving of time is also a great feature. The Renard road train by returning loaded, was able to deliver in instalments of 15 tons, goods of a total weight of 60 tons in 12 hours, while the straggling convoy of thirty bullock carts was only able to convey insignificant instalments of 10 cwts., in a total weight of only 15 tons. The distance for the purposes of the experiment was chosen to suit the limitations of bullock traction. Had a longer route, say of sixty miles, been adopted, the advantages of the Renard road train would have been even more obvious. It was shown that the same load of 15 tons entrusted to railway transport usually took four days for delivery, and generally 48 hours when despatched by river. It is not necessary to enlarge on the advantages gained by working with a train of four vehicles, with two or three men, in preference to thirty carts, with thirty men and sixty bullocks of varying degrees of slackness.

General Langlois of the French Army wrote some interesting articles in the French newspaper *Le Temps* in October 1908. He

says "the provisioning of the immense armies of the present day in the next war, is one of the most serious problems before the authorities. Railways cannot be relied on to reach troops, as units cannot all be near a line, and one must legislate for armies being 100 miles from rail head. It seems, therefore, absolutely impossible to supply a modern army with rations, and especially with ammunition, by the old means."

The motor wagons which have been experimented with for the last three years on manœuvres, carry five times as much as a horse vehicle, and can travel four times as far each day, from which General Langlois argues that they are in consequence twenty times as useful. General Langlois also lays great stress on the enormous advantage of not having miles of convoys in rear of an army. The old horse transport in France which is required for four corps, forms altogether a column of 2,400 vehicles; they occupy thirty kilometres of road space, and take eight hours to pass. The motor wagons doing the same work could pass in half an hour. Just think what this means in the case of a retreat, to be able to turn round, and retire at about ten miles an hour; and think of the extent to which it reduces the number of troops employed as escort. Then the personnel required for horse transport is four times as great as with these wagons. General Langlois estimates that 4,000 motor wagons would be required for the twenty corps which they would probably have on the frontier in a big continental war. In 1906 at the manœuvres at Langres, motor wagons carried drinking water from Chaumont to the besieging camps. The average distance for fifteen days was eighty kilometres. At the south-eastern manœuvres in 1907 the provisioning of the 18th Corps was carried out by mechanical transport which was sent out from Bordeaux, 100 kilometres, and two convoys took turns. This same year the 8th Corps was partly supplied by three Renard trains, which averaged ninety kilometres a day over very bad and hilly country. The average speed was 12—14 kilometres. None of these trains broke down, so an accident had to be invented; and one engine pulled the six trucks, its own three and those of the imaginary cripple, at eight kilometres an hour. The 9th Army Corps also experimented with a motor meat van, which carried 6,250 rations of fresh meat an average daily journey of 100 kilometres.

Italy has also taken up the question, and in 1906 created a motorist section. The Italian staff officers have to understand the management of motor vehicles. At the Milan Exhibition the Italians exhibited a train somewhat similar to the Renard. The power was transmitted from the tractor to the vehicles, but by electricity. The Italians appear to favour the employment of electricity. The Austrian Army also considers mechanical transport peculiarly suitable for lines of communication.

In Germany, in the Budget for 1908, appears a significant item (equal to about £40,000) for the encouragement of the motor industry, and to induce manufacturers to build commercial vehicles

suitable for military purposes. An allowance is made to any company or contractor who undertakes to keep a mechanical transport vehicle suitable for the army in good repair for five years. £200 are given as a purchase premium, and an annual grant of £50 for five years. (The principle is much the same as the one at home for registering horses, except that we do not give any purchase money.) The vehicles are liable to be called out for manœuvres, and only a fuel allowance is then given, the drivers getting the usual army pay, as they are generally reservists.

Mechanical transport at home has been very largely used on all manœuvres since 1903, and has been gradually increasing in extent. In 1902, it was started with one company only, and has now increased to seven. These companies are stationed at Aldershot, Chatham, Bulford, and the Curragh. They are absolutely invaluable, and I had many opportunities of seeing what they could do, during the three summers I was camped on Salisbury Plain, and also on manœuvres in Essex and on Salisbury Plain. On the Essex manœuvres the field bakery at Colchester was lit with electric light, and a mechanical transport engine supplied the power, which opened up another field of utility for mechanical transport. My camp at Salisbury Plain each year was at Perham Down, about 8 miles from Bulford by a road which is very steep in places, and these great traction engines, capable of carrying a 20-ton load, or as much as could be got on about 15 to 20 wagons, were sent out whenever I wanted them to assist my own horse company to carry baggage for regular and volunteer units, and the enormous quantity of ordnance stores that had to be taken from the station to the ordnance dépôt, etc. Any number of trips could be taken with the engines in the day, as nothing has to be considered except the drivers, who work very long hours indeed.

The advantage of mechanical transport in the saving of road space, personnel, etc., has already been pointed out; but there are many other equally important points which must not be overlooked. In the case of capture, engines can be put out of action in a few seconds by the removal of a small but important piece of mechanism, and any way they would of course be useless in the hands of an uncivilised enemy. They can also get away much faster. Then the engines do not foul camping grounds, or strew the theatre of war with evil smelling carcasses. Any one who was out in South Africa will not be sorry for this boon. Coal for engines takes up much less room than fodder for animals required to carry a similar load. Horses also get diseases of all kinds, and when retreating may be shot down. A driver may of course get killed on an engine, but he would be immediately replaced by a spare man. An engine would take a lot of stopping, and presumably the men would be protected as far as possible. Engines are easier to move by rail and sea, but big engines require special trucks. They give much less trouble on a train or boat, and, if ground is suitable, climate does not in any way affect them. Engines can naturally travel many

miles, and can go on day and night, only requiring the drivers to be changed, so that a forced march can be undertaken without anxiety as to the transport. And last but not least, one must not forget the old watch-word "economy." The following table of expenditure which has been sent me from our headquarters at Aldershot gives one a fair idea of the comparative costs and upkeep, although the figures cannot of course be expected to pan out the same in every place:—

Capital outlay.	Annual expenditure.			DAILY MILEAGE.		Annual mileage, 360 working days.	Cost
	£.	d.	l. d.	Empty.	Full.		
One traction engine of "Lion" type, 4 wagons, 6-ton capacity attended by $\frac{3}{2}$ men.	1,778	15 0	788 1 11 $\frac{1}{2}$	24	12	12	6,340 74,880 24·6
19 G. S. wagons and 19 pairs of horses attended by 38 men.	323 11 6x19 =£6,147 18 6	197 6 4x19 =£3,749 0 4	1 l. 7 $\frac{1}{2}$	24	10	10	5,300 74,100 13·14
One traction engine of "Lion" type, 4 wagons, 6-ton capacity attended by $\frac{6}{5}$ men.	1,778 15		1,155 8 7 $\frac{1}{2}$	24	24	24	12,480 149,760 1·85
19 G. S. wagons and 19 teams of horses attended by 38 men.	524 8 0x19 =£9,068 17 0	357 9 5 $\frac{1}{2}$ x19 =£6,701 19 6 $\frac{1}{2}$	28 $\frac{1}{2}$ 20				10,400 148,200 10·99

This brings us to a very important subject, namely, the shortage of horses at home. Now that omnibuses, trams, brewers'-carts, etc., etc., are so largely mechanically propelled, where are we going to get horses from? The only obvious thing to do is to abandon horses and get a lien on all suitable motor busses and lorries, etc., in case of a war at home. I have just heard that this has been done, and that motor vehicles suitable for the army are now being enrolled for one year, and are re-enrolled each year, provided they are still efficient. These motors are liable to be purchased on mobilization. Owners who are prepared to hire their vehicles for manœuvres receive a subsidy of £2 p.e. annum, others only £1. Not a very generous amount perhaps, compared with Germany's £50 a year plus £200 down; but a bait is held out of £4 a day when hired for manœuvres, with fuel and oil thrown in, which is proving sufficiently attractive.

From what has been said in this lecture it will be seen that the experiments made in this country have all established the fact that no existing type of mechanical transport is suitable for India; and it is now up to some one to design something that is. Personally I think there is no reason why a very light lorry driven with petrol, with rubber-shod non-slip tyres, with plenty of extra power available

for bad hills and *kuchha* roads, and with a radius of about 80 or 100 miles, or a small caterpillar when perfected, should not prove a success, and be invaluable on active service. The authorities no doubt fully realised the necessity for mechanical transport out here when they went to the enormous expense of trying the various types which they did, and it is therefore logical to conclude that the necessity still exists. It appears to me that mechanical transport was started out here a few years too soon, and most of the expense might have been avoided, had an expert been engaged to go into the multitudinous natural disadvantages of the country, and that expert's report given to various big firms at home to show what was required. This would at all events have prevented the eight big engines being sent out, and the money spent would have been much more usefully employed in giving rewards to firms for experiments in building something likely to be suitable. One might be entitled to conclude, for instance, that in Calcutta, at all events, it would be safe to land mechanical transport without preliminary enquiry, as the roads are *pucca* and solid everywhere, and all kinds of fuel are available and there are no fords or hills; but I can assure you that none of the types of mechanical transport which have been tried in India would be really useful to the Supply and Transport Corps even in Calcutta. First of all the arsenal and barracks inside the Fort would be unapproachable owing to the light bridges and narrow entrances and exits; also Howrah bridge would be barred straight away, as its limit is something in the neighbourhood of 5 tons; it would thus be impossible to take any stores to or from Howrah station, or collect anything from big firms on the other side of the river.

Needless to say it is not for me to criticise the actions of my superiors, especially as I know very little about the actual facts, or on whose opinion the various types were decided on; and while it is very easy to be wise afterwards, in 1902—04 there was not much choice, and mechanical transport was in its infancy. But I think that it is within a lecturer's license to draw conclusions from results, and it appears to me quite clear that if the letter which was sent to all the Colonies had been written in 1902 instead of 1907, and had been sent out here, and an expert at this end had answered the 32 questions, no road and bridge destroying forms of mechanical transport would have been allowed to arrive in the country, and so prejudice the Government against its universal introduction.

The question as to whether in the event of a big war out here the present organized and unorganized transport now in the possession of the Supply and Transport, with the help of what we might call the disorganized transport locally procurable, would stand the strain that would be put upon it, is one on which I am totally incompetent to give an opinion. I content myself, however, with repeating the significant fact that in England and on the continent the old-fashioned transport is no longer considered sufficient, and mechanical transport is now universally recognised as essential.

THE FAUJI AKHBAR.

BY ITS EDITOR.

The writer of an article on " Vernacular Examinations" in the January *Journal* referred to the advantage that would accrue to British officers of the Indian Army if they could (or would) read the weekly letters, published in the *Fauji Akhbar*, from Indian officers and men of the Indian Army. The difficulty is, of course, that only a small percentage of British officers are able to do so; and the Editor of this *Journal* has kindly consented to allow a few extracts from the more important of these letters to be published in English, in the belief that they will prove of interest, at least to Indian Army readers.

The period covered by these extracts is the last six months of 1910. The greater part of the suggestions are, as is perhaps inevitable, pleas for an increase of pay. These are usually prefaced by an expression of gratitude to Lord Kitchener for the last rise in pay of the Indian Army : but this gratitude, as usual, generally takes the form of "a lively sense of favours to come," and great things are hoped from the Coronation Durbar at Delhi. The bulk of these suggestions have been omitted, but a few of the more reasonable ones are given as samples. Next after improvement in pay, pension questions are—perhaps with more reason—the most popular subject of correspondence. Then come questions of accommodation, and of improvement in the status of certain ranks and classes: suggestions intended to catch the eye of the civil, railway, and postal and telegraph authorities: proposals for the raising of new units and for improvement in the usefulness of existing ones: and, lastly, discussion of miscellaneous questions, which are perhaps the most interesting to the general reader. Selected examples of all the above are given below, under their several headings; though, as some naturally overlap, it is difficult to classify them all exactly.

IMPROVEMENTS IN PAY AND STATUS.

(1) A special suggestion is made regarding the " recruit boys " of Gurkha regiments. The writer states that with reference to the order for enlisting 20 extra men to replace casualties, regiments which have " recruit boys " are only allowed to enlist 14 extra men, and the pay and half-mounting of the remaining six men are spent on 15 " recruit boys," 5 each at Rs. 4, 3/8, and 3 per mensem (= Rs. 52), kit-money at Rs. 4 each (= Rs. 60), and half-mounting at Rs. 3 each (= Rs. 45): As when the pay, etc., of the men was increased, that of the " recruit boys " remained stationary, there is a saving to Government of the pay (Rs. 13/8), kit-money (Rs. 300), and half-mounting (Rs. 42) of the six men who are not enlisted. If the pay

and allowances of the "recruit boys" could be increased as follows, there would be no loss to Government, and the boys would receive a much-needed increase of pay, and would be saved from getting into debt over the necessary articles of their kit :—five boys each at Rs. 5, 4/8 and 3/8 monthly (= Rs. 65) : kit-money, Rs. 24 each (= Rs. 360), and half-mounting, Rs. 5/8 each (= Rs. 52/8).

(2) Many letters comment on the fact that the pay of the Transport Corps was not raised when that of the Indian Army was increased : and stress is laid, in particular, on the necessity for an increase at least in the case of the non-commissioned officers, who also ask for good-conduct pay, like their brethren in the line.

(3) The pay of Government followers is declared to be quite inadequate nowadays, and attention is drawn to the difficulty of getting men for the work in face of the competition of the open labour market. Bhistis, in particular, complain that they have to buy their own mussels and buckets, and that these articles, like every other commodity, have increased in price of late years.

(4) Special enlistment of well educated men for signalling duties in the Indian Army is suggested. The importance of the work, and the desirability of a good knowledge of English, are dwelt on : and special concessions are asked for, such as increased allowances and regular annual leave such as is usually granted to bands.

(5) Regimental schoolmasters and clerks ask that they should be excused all duties, as is already the case as regards musketry : and that they should be eligible for the honorary rank of jemadar and the special pension of Rs. 15 after twenty-one years' service, instead of thirty-two as at present. Band havildars also ask for the same honorary rank and pension, on the ground that they are usually debarred from further promotion after reaching the rank of havildar.

PENSION QUESTIONS.

(6) Constant stress is laid on the argument that the pensions of the Indian Army, fixed many years ago under entirely different conditions, are now quite inadequate. The pay of the Indian Army has been raised twice during the last fifteen years, but the pensions remain the same : and it is suggested that the Delhi Coronation would be a fitting opportunity for granting this boon.

(7) The recent orders regarding the pensions of men employed on civil duties have given rise to a number of complaints. There are a number of retired Indian officers who have been employed as passenger superintendents by the N.-W. and O. R. Railways, on pay at Rs. 105 a month. Under the new rules, this scale of pay, in most cases, entails suspension of pension : and it is asked whether Government will allow employed pensioners to count the period, during which their pension is in abeyance, towards the time necessary to qualify for the higher rate of pension. It is also suggested that service performed by a pensioner in the Imperial Service Troops should be reckoned as qualifying service for the higher rate.

(8) An honorary captain argues that it would be a good move if the rules granting increased pension to Indian officers could be made retrospective, so as to include those who retired before the new rules came in.

(9) Pensions for the heirs of transport followers who die on service are asked for.

(10) It is requested that the Punjab system of payment of pensions through the post-offices may be extended to other Provinces in India. It is pointed out that old and infirm people, and *parba* women, are put to considerable trouble, and that avoidable expense is caused, by the necessity for drawing pensions at district court treasuries.

IMPROVEMENTS IN ACCOMMODATION.

(10) In the new lines for the Indian Army, now being built, one additional room in the quarters of Indian officers is asked for, to receive guests, hear reports, etc. It is asserted that such additional rooms are provided in the quarters of inspectors and sub-inspectors of Indian Police. Also a latrine and bathing place, which is especially necessary for females of good caste. The building of a bath-room, with water taps and pegs for towels, etc., attached to each block of barracks, for the convenience of N.-C. O's and men, is also recommended.

(12) It is suggested that hill stations, to which detachments of the transport corps are sent, should be provided with married quarters for the men, as they often have to live in the hills for seven months on end, and great inconvenience and expense are caused to married men.

SUGGESTIONS TO CIVIL AUTHORITIES.

(13) Attention is drawn to disabilities under which pensioned Indian officers are said to labour, when they attend at civil courts to draw their pension: in that "they have to walk about, like a chappassi or a sentry on duty, for hours waiting their turn;" and it is asked that seats may be provided for them.

(14) It is suggested that specially selected retired Indian officers may be held eligible for nomination as unofficial members of the Councils, Provincial or Imperial.

(15) A request is made that the railway concessions, sanctioned for the Regular Army, may be extended to the Imperial Service Troops. Another suggestion is that N.-C. O's of the Indian Army may be allowed to travel intermediate, at the single rate for a return journey, on paying the difference between the third class and intermediate single fare.

(16) Complaint is made of delays in the delivery of telegrams (*e.g.*, in answer to applications for extension of leave) to soldiers at their homes. Several correspondents also assert that great delay in the delivery of letters, and especially of money-orders, occurs in Rajputana, and ask for enquiry by the postal authorities.

RAISING OF NEW UNITS, AND IMPROVEMENTS IN EXISTING ONES.

(17) It is stated that "the historically important tribe of the Moghuls has been put last of all the warlike tribes for recruiting purposes," and the request is made for the raising of a class regiment from this tribe.

(18) It is suggested that a Transport Depôt may be raised at Rawalpindi, to consist of one Indian officer, one daffadar, 2 naiks and 100 drivers, as a reserve for field service: the Indian officer and the daffadar being utilised as instructors, and the naiks as recruiters, to enlist men as required.

(19) It is argued that N.-C. O's of the Transport Corps should be instructed in signalling, which, it is claimed, would be most useful on the line of march and in the field; also, that they should be armed with Martini-Henry carbines, for the protection of animals and their drivers, on service.

MISCELLANEOUS.

(20) A suggestion is made that risaldar and subadar-majors, woordie-majors and native adjutants should be struck off duty and relieved from their duties of command: and that extra Indian officers should be enlisted in their places, so that regimental efficiency may not suffer in consequence.

(21) The title of "Jemadar" has fallen into some disrepute, owing to its being commonly applied to certain low-caste men. This point was discussed at considerable length, and various alternative titles were suggested, including "Indian Lieutenant" with the corollary that "Indian Adjutant," "Indian Captain" and "Indian Major" should be introduced. This is, of course, already done in the French Colonial Army, where the titles "Lieutenant indigène," etc., are used. The majority of correspondents on this subject, however, voted for "Naib-Risaldar" and "Naib-Subadar," cavalrymen being generally of opinion that the meaningless title of "Kessatdar" should be abolished.

(22) Several proposals for an Indian Army Provident Fund have been put forward, for the benefit of retiring soldiers and the families of deceased soldiers. An all-round levy of four annas a month from the pay of all ranks of the Indian Army is suggested (one correspondent advocates a graduated levy, at a monthly rate of Re. 1 for Indian officers, 8 annas for N.-C. O's and 4 annas for sowars and sepoy's) to produce a monthly revenue of about Rs. 40,000. The suggestion made was, that a committee of commanding officers, risaldar and subadar-majors, should be appointed, with a central committee at Army Headquarters; that each unit should submit a monthly list of deserving soldiers, and that the central committee should inform officers commanding stations of the names of the selected recipients, when the latter would inform the unit concerned. It was suggested that such a fund might be named after, and started in honour of, the late King-Emperor, in which case the hope was expressed that H. E. the Commander-in-Chief would consent to be patron of the fund.

SPECIALISATION IN TRAINING.

BY MAJOR E. J. M. WOOD, 99TH INFANTRY.

"We want a policy to begin with before we commence training; a policy has never been properly laid down for us. Many of us have asked for a policy before writing rules and regulations, but we have only got the wide basis that we should be prepared for any kind of fighting whether against European Powers or Basutos."

This remark which was made by Lieutenant-General Sir R. Baden-Powell at a recent discussion at the Royal United Service Institution on "The proposed changes in cavalry tactics," although used only in reference to the armament and tactics of cavalry, affords an appropriate text on which to base the following notes on the subject of specialisation in training.

General Baden-Powell complains that when we are asked to lay down the lines on which our cavalry should be trained, no definite information is provided as to the nature of the enemy whom we must expect to meet, and that we are in consequence unable to adopt one particular policy for the training and armament of our mounted forces. In a world-wide empire such as that of the British, with liability on the part of its forces to operate in countries of every description and against peoples of widely varying civilisation, it may not be possible definitely to lay down such a policy as General Baden-Powell demands, but there is no controverting the advantage of being able to recognise your probable enemy as well as the area in which you are likely to operate, and to adapt your training accordingly.

It is only natural that greater interest and keenness should be aroused when a definite objective is placed before a man than if he is only required to prepare generally for a vague eventuality in which he may or may not be directly concerned. The schoolboy as a rule does not sit down seriously to study on his own, so to speak, until he has decided on the particular profession, business, etc., he intends to follow. When that is done he has a definite objective for his studies, and, recognising this, he feels an interest in them and an incentive to work, which in all probability was previously lacking. The general educational foundation which precedes this period of specialisation is necessary and highly important, but it is likely that the student's application will in that stage be less spontaneous and more the result of supervision and discipline.

It is the same with military training. There must first be instruction in drill and general tactical principles to form a foundation,—instruction which must be by no means neglected,—but, the foundation being laid, the student should, whenever possible, have pointed out to him a definite sphere of action in which he may have the chance some day of playing a part, and his training should be

guided on the lines which will best fit him for it. By this means his interest will be stimulated with proportionate profit to his training.

No better example of the advantage to military training of having a definite objective could be found than the success of Japan in the recent war. For many years before the war, Japan, we are told, had viewed with apprehension the gradual approach of Russia; and in proportion as Russia pushed her encroachments, so the dread of her grew in the minds of Japanese statesmen. This dread no doubt permeated all the Japanese people: Russia was the common enemy to be dreaded and therefore to be guarded against. Here was the definite objective which sufficed to arouse interest and enthusiasm; all training and organization had this one end in view—the encounter with Russia, an encounter on the result of which Japan recognised her very existence might depend.

Another example of the advantage of specialisation in training is afforded by the action of the Prussians before 1870. They made it their business to know all about the French forces and their methods of fighting years before the war broke out. In 1864, for example, Prince Frederick Charles published for the use of the army corps which he commanded a pamphlet entitled "The Art of Fighting the French," and the late Colonel Henderson says* that there can be no doubt that the admirable teaching therein contained had spread far and wide through the army before war was declared. Henderson also points out that the previous study by Wellington and Sir John Moore of the tactics of the French, a very possible enemy, and the adapting of the training of the troops which they commanded on the lines best calculated to meet such tactics, no doubt largely contributed to the success of those generals.

On the other hand the same eminent authority quotes, as an example of the neglect of this study, the conquest of Prussia in 1806, when, although it was well known that war with Napoleon was inevitable and that success had followed the system of tactics adopted by the French, all suggestions that the training of the Prussian army should be modified to meet this new system were rejected from an overweening pride and a contemptuous disregard of foreign methods. Russia's contempt for her probable opponent in the Far East before the outbreak of hostilities in 1904, and her consequent neglect to make adequate preparations, was on a par with this.

There is no intention to imply that the ordinary tactical training contained in the Field Service Regulations and Manuals may be neglected. This is the foundation of training. Nor is it suggested that officers may neglect the study of broad tactical principles, a knowledge of which is mainly to be derived from reading and re-reading the campaigns of the great generals. Specialisation comes after this, and, if based on it, will be of undoubted value.

Having thus tried to demonstrate the general soundness of the principle, let us enquire to what extent it is possible or desirable to

* *Science of War*, page 362.

adopt it in our Army to-day. Exclusive of the Indian Army and the colonial troops, our forces are at present organized into the Regular and Territorial Armies. The greater portion of the former at home goes to form the Expeditionary Force for operations overseas, while the latter is intended to defend the United Kingdom from invasion. As previously stated, the liability of our regular army to fight in countries of every sort and against peoples of widely varying civilisation makes it difficult to say who or of what description our possible enemy may be. Constant inter-communication, the wide dissemination of military information, and the close watch kept on each other's military training and tactical methods, to a great extent precludes the possibility nowadays of any civilised power having adopted any particular form of tactics that will not have been fully discussed by other nations, and the best means of combating it, or the advisability of adopting it themselves, considered. It therefore appears best to train our expeditionary force on such lines as will fit it to meet a civilised enemy trained in accordance with the latest ideas on tactical training. This will in any case prove a sound foundation to which, when any part of the regular forces is located overseas, can be added such specialised training as may be found desirable to prepare them for the conditions obtaining there.

The territorial force on the other hand has a definite rôle and its training should be guided accordingly. This is already recognised by the authorities at home, as witnessed by the operations which were recently planned for portions of the force to carry out, *viz.*, rapid concentration to repel a raid from overseas.

It is not suggested that their normal tactical training in conjunction with other troops should be neglected, but the rôle which our territorial troops are intended to fill should be constantly kept before them and their training conducted with this end in view.

In the case of troops stationed out of the United Kingdom, and the colonial forces, their probable rôle can also be forecasted with some certainty and their training specialised accordingly. The forecasting of such duties and the consideration of the best means of preparing for them would no doubt in each case form an interesting study, but it is proposed to refer here to India only.

For the army in India active operations must in all probability take place either on the N. W. or N. E. frontier, or may consist in the suppression of internal disturbances. (Overseas operations based on India are not considered to form a part of the *normal* rôle to be expected from the army in India.) The N. W. frontier has loomed largely in the military policy of India for many years, and our energies have naturally been specially directed in preparing for eventualities in that direction. Henderson says of this frontier—“There is the most vulnerable, and I might almost say the most vital point of the British Empire,” and although recent political events may seem to have lessened its vital importance in one way for the present, preparedness for whatever eventualities may arise is as incumbent on us as ever. It is then for operations in this

direction that specialisation in training is primarily called for. Operations on or across the N. W. frontier fall into three categories, viz., those directed against :—

(a) A civilised power ; (b) an uncivilised power, but with some military organization ; and (c) the warlike, but undisciplined and untrained frontier tribes.

Recognising that it is thus possible to indicate certain definite objectives, how can we best take advantage of this knowledge to influence the training of the army in India ? In the first place the country in which the greater part of the operations will take place is for the first two, and to a certain extent for all three, almost identical. This is certain, and therefore time devoted to a careful study of the natural features of the country lying on and beyond our N. W. frontier will not be wasted. All officers should be thoroughly familiar with the climate there at all times of the year, the nature of the terrain in different parts as it is likely to affect military operations from the strategical as well as tactical point of view, the communications, and the resources of the country in the matter of furnishing water and supplies. The people who are our possible enemies should also be studied—their history, moral qualities, organizations, and methods of fighting. In the case of the first of these possible enemies the study of their methods of fighting will no doubt vary but little from the normal study of modern tactics, but here again the definite objective should stimulate interest, while a study of the national characteristics of the people and a familiarity with their military organization will assist in guiding us as to the extent to which normal tactical principles are likely to be modified by them in their application.

In the case of Afghanistan and the frontier tribes, even greater advantage will be gained by a close study of these subjects, for their organization and methods of fighting are not normal. The study of what is termed frontier or mountain warfare is nothing new in India, but it is doubtful if the characteristics of the various tribes, their history, moral qualities, and methods of fighting receive sufficient attention. Similarly with Afghanistan ; it would be interesting to see how many out of a hundred officers selected haphazard from the army in India could say how the Afghan army is organized and armed, or could estimate its probable fighting value.

A third, and perhaps the most important subject for study is the military history of the frontier country. From earliest times military operations have taken place over its rugged and inhospitable features and there is an ample supply of literature available.* From this can be learnt the system of tactics best suited to the enemy, the difficulties attending campaigning there, and how best to prepare for and overcome them.

In order to apply this study to practical training, staff tours and regimental exercises should, when ground at all suitable is available, be based on frontier and trans-frontier operations. Indoor schemes

* There is no necessity to specify particular works, they are numerous, official and otherwise, and are available in all military libraries.

lectures, and essays should be framed on similar lines, while the selection of campaigns in trans-frontier country for promotion examinations and for study under Training and Manoeuvre Regulations, section 5 (1), would ensure that special attention which the writer has endeavoured to show is so desirable.

It is recognised that a good deal of this training must be of a theoretical nature, but there is no reason why it should be so entirely. Country, the features of which resemble to a certain extent that to be found in the various districts across the frontier, can be found in many parts of India, and full advantage should be taken of any such resemblance to specialise the training of the rank and file as well as that of the officers.

Similarly, though perhaps in a less degree, recent events would seem to show that it is important to study the conditions on our N. E. frontier. Here again literature is not wanting. Particular interest in operations on the N. E. frontier naturally falls to the troops stationed in its direction and in Burma generally.

There remains the important, though less attractive service, of maintaining order in India. Preparation for this can best be made by a study of the particular conditions obtaining in different localities and the duties which such conditions are likely to require. This is the rôle which our volunteers are called upon to fill, an onerous and responsible one, and it is highly satisfactory to note that the importance of guiding their training so as to fit them for that rôle is now fully recognised. The general military training which they formerly received was no doubt of value in teaching discipline, drill, and musketry, but their present training, framed as it is to fit them for their special duties, is obviously of greater value still, while as is natural, the volunteers themselves, recognising that they are preparing for a definite rôle which they may be actually called upon to fill, take a proportionately greater interest in their work.

In order to facilitate this specialisation in training units should, as far as is possible and desirable, be made aware of the rôle to which they are allotted on mobilization. They would thus be given the definite objective, the importance of which has been referred to, and would be enabled to conduct their training, as long as they remain so allotted, so as best to prepare themselves for their particular rôle. The frontier brigades furnish a good example of the advantage of this scheme. They are assigned very definite duties, of which they are well aware; they are liable at all times to be called on to carry out those duties; and they are thus enabled to direct and keep their training on special lines.

This principle of guiding training in a particular direction will necessarily be mainly, though by no means entirely, for the benefit of the officer, the regimental as well as the staff officer; but to quote again the late Colonel Henderson—"the deeper the knowledge of the instructor with what his men have to be trained for, and the clearer his insight into the difficulties he and they will have to encounter, the sounder will be his work." *

* "The Battle of Spicheren," preface, page vii.

INDIAN (NATIVE) ARMY RESERVES.

BY COLONEL H. F. LOCH, INDIAN ARMY.

All continental nations have long ago settled the question of army reserves by adopting compulsory service as one of the necessary burdens of national existence. Great Britain is still endeavouring to find some means for providing adequate reserves without resorting to compulsory service; and a start has been made in the formation of a reserve for the Indian Army. This paper will attempt to show that this reserve is insufficient, and will discuss some remedies for this state of affairs. Of course, compulsory service is out of the question. It is inapplicable for many obvious reasons to the Native Army of India and its reserves. Such reserves as exist have been raised on a voluntary basis, and any increase must be raised on the same lines.

To determine the adequacy or otherwise of the Indian Army reserve we must consider the objects for which a reserve is maintained. These objects, as generally accepted by other nations, are:—

- I.—On mobilization to bring the field army up to war strength.
- II.—To replace wastage.
- III.—To form additional units.
- IV.—To garrison fortresses, dépôts, etc., and to form training centres for recruits.

It is proposed to discuss each of the above headings in turn.

With regard to I, all nations whose army system is based on compulsory service maintain their fighting units in time of peace at a numerical strength very much lower than war requirements, and it is the first duty of the reserve to bring units up to war strength. The army of Great Britain, although raised on a voluntary basis, forms no exception to this rule. All men physically unfit, all immature and partially trained recruits, are kept back, and their places are filled and the unit brought up to war strength by reservists. The South African war showed up the inadequacy of the Home reserve. In order to put the army in the field at war strength almost the whole of the available reserve was absorbed into the fighting line.

In India, on the other hand, units are maintained at a peace establishment in excess of field service strength, so that there is no demand made upon the reserve to bring units up to war strength. If, from any cause, a unit cannot proceed on service at full war strength, the deficiency is made good from other units and not from the reserve. Indian reserves, therefore, under the present system are not required to fulfil condition I.

It is possible that, in the future, this might be one of the demands the reserve would have to meet, for it is a question whether

the war establishments of Indian units have not been fixed at too low a figure, especially in the case of the infantry. An article in the September number of the *R. U. S. I. Journal* drew attention to the very large reduction of the numbers in the fighting line of a native battalion owing to the calls made on it for special services. Our experience has mostly been confined to hill and guerilla warfare and expeditions against frontier tribes. In such small wars the weakness of the fighting line has produced no evil effects, and perhaps the greater facility of handling a small battalion has been a set off against the small numbers. The losses from sickness and casualties have not been very severe, and if one battalion happened to become so reduced as to be inefficient, it has been replaced by another.

But, of late years, we have been putting our military house in order. The reorganization of the field army, now nearly completed, has been carried out in the first place to meet a European foe and to fight out what would probably be a life and death struggle for the sovereignty of India. The battalions that we should have to face in the field would be 1,000 and more strong. Is it wise to handicap ourselves by putting battalions into the field nominally three-fourths of this strength, whilst their actual fighting strength, after allowing for deductions, is not much more than half? Does not the experience of all recent wars, from the American Civil War down to the war between Russia and Japan, and including our own experience in Afghanistan in 1879-80, show how quickly battalions are reduced to half, and less than half their strength? The smallness of our present battalions will not save them from the inevitable loss, and after a few weeks' service we may expect to see battalions barely able to muster three or four strong companies in their fighting line. The inevitable sequence of weak battalions will be the mixing up of brigades, and the disruption of the brigade and divisional organization which has now been so carefully elaborated.

As regards II—to replace wastage, i.e., to keep the field army up to its war strength, whether the loss is caused by sickness or casualties in battle. In this particular the use of the Indian Army reserves follows what is usually done in other armies. Reserve battalions are formed and drafts of reservists and trained recruits will be sent to the front to replace casualties.

Are these reserves sufficient?

In answering this question we will only deal with the reserves for infantry. The heaviest loss falls on the infantry, and an organization which gives sufficient reserves to meet the requirements of the infantry, will more than meet the needs of the other arms. It must not, however, be forgotten that the Indian Army is not homogeneous: considerations of race, creed, and battalion organization prevent the reserve being treated as a general reserve. It is a battalion or groups of battalions reserve, and it is from this point of view that we must judge of its sufficiency.

It is officially recognised that 80 per cent of the strength is the normal infantry wastage during a twelve months' campaign. The

infantry wastage of the Russian Army during the late war was about 90 per cent. That of the Japanese must have been higher, so that 80 per cent is if anything too low. It will however be best to accept the official figure.

The Indian battalion has a war strength of about 745 of all ranks, and a reserve a little over 300 strong. It is therefore evident that if the reserve is to be the only source from which wastage is to be made good, it is only sufficient to last six months. However, it is no doubt anticipated that with recruits and the reservists of linked battalions not proceeding on service, wastage can perhaps be made good for one year. It is quite possible that these anticipations will be falsified. If the war is unpopular, recruiting is likely to fall off, as it did in many corps during the Afghan campaign, and it would be safer to have a reserve sufficient at least to meet all the demands for one year, than to depend on a source of supply which may partially or entirely fail.

As regards III, to form additional units (*a*) to reinforce and materially increase the fighting line, (*b*) to protect the lengthening lines of communication, (*c*) to hold and pacify conquered territory. At present, on mobilization, the reserves are to be formed into reserve battalions, but their employment, except to replace wastage, does not seem to have been settled; and from what has been said above, it would seem that after allowance has been made to replace the wastage of the field army, there will be no reserves left to form supplementary brigades and divisions.

The nine divisions of the field army absorb about two-thirds of the available battalions. The remainder form the necessary garrison of India. If more troops have to be placed in the field, the reserve having been exhausted, we shall have to raise fresh troops to release those held back in garrison. The efficiency of these battalions will however be seriously affected by the calls made on them (*a*) to bring the linked battalions in the field army up to strength; (*b*) to furnish N. C. O.'s for reserve battalions; (*c*) to find men for the cadres of supply trains formed after mobilization. It is, therefore, probable that they will have a large number of young soldiers and partially trained men in the ranks, and their efficiency would be greatly increased if a stiffening of reservists could be added.

As regards IV, garrisons for fortresses, depôts, etc., and training centres for recruits.

The fortresses of India have been reduced to a minimum, and should be held by European troops.

At the beginning of a war the necessary garrison to maintain law and order in India is furnished by the regular battalions not required for the field army and the so-called reserve battalions. These also provide for the depôts and training centres. The ultimate employment of these troops has been touched upon above.

To sum up. The Indian Army reserve as it stands is barely sufficient to perform two of the objects (II and IV) for which a

reserve is maintained. It must be considerably increased if it is to fulfil the other two objects (I and III) which may be demanded of it.

The chief objections likely to be raised to an increase of the reserve will be the extra expense, and that, as there is a possibility of the war extending over a long period, time will permit of fresh troops being raised and trained, if required. The reply to this is that large reserves on reserve pay are much less costly than large battalions on full pay ; and for anyone to maintain that it is better and more economical to raise troops after the commencement of war than to have trained reservists ready to meet all requirements, shows an unpardonable ignorance of the teachings of military history and especially of our experiences in South Africa.

Opinions will no doubt differ as to the numbers required for the reserve ; few will deny that whatever the number (and this must be finally limited by what Government is willing and able to pay for), the reservists should be thoroughly efficient, fit to rejoin the ranks. Does the present Indian Army reserve fulfil this condition ?

It is generally accepted that the physical and mental strain of modern war requires the men in the ranks to be comparatively young to bear it. Thus we see in all armies, our own Home Army included, that service in the first reserve terminates at 12 years' service, i.e., at about 32 years of age. A second reserve renders a man liable to serve up to the age of 38 or 40, and these two reserves fulfil all the conditions for the reserve laid down above. Then there is a third reserve or Landwehr, which can be called up in emergency and would relieve the more active troops from garrison duties.

There is no reason to suppose the men of the Indian Army are better fitted than their European brethren in arms to stand the strain of service. The same rules may therefore be applied to them. Thus, men in the Indian Army reserve, fit to fulfil the first two conditions of an active reserve, should not exceed 32 to 35 years of age. The age and physical condition of the individual ought to be the real criterion of his fitness, but, in dealing with questions of this sort, an average must be taken as a general standard, and this is fixed by the limit of 12 years' service. Above 12 and up to 18 years, the men, though perhaps not retaining the same keenness and bodily activity of the earlier years of their service, are still fit to fulfil the 3rd condition of a reserve, and could be used in the first line. After 18 years' service (or at 20 years at the outside) it is universally admitted that the men are too old to undertake active duties in the field, and they should go on pension to make room for younger men.

If we now examine the reserve as it exists, we find a heterogeneous collection of men of all ages and service, from about 4 years to 25 years in the ranks. Of these rather less than half have under 12 years' service and can be considered a first class reserve fit to take

their place in the fighting line. About half the remainder are men between 12 and 18 years' service—not quite so good as those under 12 years, but still a useful addition to the reserve. The remainder, i.e., about one-fourth of the whole, are men over 18 years' service. From this we see that instead of a reserve on paper of some 300 men per battalion, we have barely half that number ready and fit to take their place in the fighting line; and as the reserve is so small, for the country to get full value for its expenditure, the whole of the reserve should be under 12 years' service.

The chief difficulties in the way of proposals to improve and increase the reserve are mainly political and financial. If these two difficulties were swept away there yet remains a third—under voluntary enlistment would recruits come forward in sufficient numbers to fill the ranks and the reserve?

In order to increase the reserve we might follow the custom of the Home Army and introduce 7 years with the colours and 5 years in the reserve, some 25 to 50 per cent being allowed to remain on to 18 years to supply N.O.'s, N.C.O.'s, and to qualify for pension. If these terms of service proved acceptable to the classes from which we recruit, we should get a large and efficient reserve sufficient to meet, at the lowest cost, all demands that (so far as one can for the present foresee) are likely to be made on it. The actual strength of the reserve would be limited in the first place by the supply of recruits and, in the second, by what would be considered politically safe.

As, however, the prospect of a pension is supposed to be one of the chief attractions of the Army, it is possible that 12 years' service and the chance of pension for only a small percentage may not attract recruits. Should this be the case, the necessary expenditure must be incurred to make the reserve *efficient*, even if it cannot be made altogether *sufficient*.

The first step towards efficiency would be to sweep all the old men out of the reserve by giving them their pension at 18 years' service instead of 25. We pension the men in the active army at 18 years' service, because we believe they have come to the end of their usefulness and would be likely to break down if called on to bear the hardships and strains of a campaign. Is it logical to retain men with over this number of years' service on the lists of the only reserve we have—liable to be called up for active service in the field equally with men under 12 years' service? Is a reservist of over 20 years' service, with perhaps half of that time spent in the reserve, likely to be a better campaigner than a man who has just left the ranks on pension after 18 years, and to whom we say, in effect, "Here's your pension. You are now too old for the strain of war?"

If the original reason for keeping men in the reserve up to 25 years' service was to have some reservists for garrison work in case of necessity, it would be better to retain a lien on the men who leave the ranks after 18 years, and make it one of the conditions of the grant of a pension that for three or perhaps seven years they

would be liable to be recalled to the colours for garrison work in case of a national emergency.

Getting the old men out of the reserve would raise the proportion of men in it who have less than 12 years' service to about three-quarters of the total. But this is not enough as the writer has endeavoured to show. The whole strength now sanctioned as a reserve should be composed of men with less than 12 years' service to their credit. This might be termed the *first reserve*. Men on reaching 12 years' service should be drafted into a *second reserve*, and pensioned at 18 years' service.

We should thus have a small but thoroughly efficient reserve. It would not be as large as that maintained by other nations, but we can hardly hope to reach such a standard, as this would mean the increase of the reserve to four or five times its present size. The actual increase in numbers of the reserve under this proposal would be one-half to two-thirds of the present strength, and these would form the second reserve.

The somewhat chaotic composition of the reserve must be my apology for putting forward these suggestions.

THE FAR EAST.

With Special Reference to China as a Future Military Power.

BY COLONEL A. W. S. WINGATE.

The object of this short paper on a vast and complex subject is to excite among the readers of this *Journal* a greater interest in the Chinese Empire and its people in order that it may, perhaps, receive a larger share in the problems of the future which those responsible for the protection of our Indian Empire have from time to time to consider. The Chinese military problem will most assuredly force itself upon the notice of the world in an ever-increasing way as the years roll by, and it is one which should especially interest the Government and people of an empire whose frontiers are contiguous to those of the Chinese for close on 3,000 miles.

We must, however, be careful how we proceed, for such a subject cannot be adequately discussed in a cursory manner. We cannot disregard the wise warning of that astute judge of the Chinese—the Reverend Arthur Smith, who says, “China is a vast empire, proverbially difficult to understand, no matter what the length of time may be which has been spent in it; therefore it is important to be on one’s guard against those cheap and easy solutions of a difficult and complex problem which, by misrepresenting some of the factors, omitting others, and remaining in total ignorance of yet more, may be able satisfactorily to explain everything about China in a few succinct and well-turned paragraphs.”

It is as though I should attempt to describe in these few pages “The British Empire, with special reference to the development of India as a military power.” Who can hope to sum up in a “few succinct and well-turned paragraphs” the characteristics of one quarter of the population of the world, and to foretell the future possibilities of a territory larger than Europe by half a million square miles? Moreover, in this case, we have to deal with a people to understand whom some advise us first to stand on our heads and then to think backwards! Consequently the few bald facts, and hasty deductions based upon them, which are here given must be taken in the light of “the widow’s mite” to which many larger contributions must be made before we can safely draw conclusions upon which to base our plans.

Before we proceed further, or draw deductions as to China’s future military power, we must, be it ever so cursorily, take note of a few salient geographical and historical facts and glance at some of the main characteristics of the Chinese people.

Were there space, it would be interesting to review ancient Chinese geography and history, to know who the Chinese are; when

and whence they came ; and how their curious language originated, but that is impossible here. It is, however, most important for us to get some idea of the antiquity of the Chinese people.

The name "China" is probably derived from the word 'Sinim' in the 49th chapter of Isiah, 12th verse : "these from the land of Sinim." This word may be Tsin, the celebrated feudal state which flourished in 847 B.C. in the N. W. The Romans called China 'Serica,' the silk-producing land ; and in the middle ages it was known as Cathay. The Chinese call their country Chung-kuo or Middle Kingdom, and Hua-kuo or Flowery Land ; they speak of themselves as Han-jen, or men of Han, the dynasty ruled over by the first Emperor, Huang-ti (yellow earth), that is to say, the ruler of the yellow loess soil of Shen-hsi, where the early Chinese first started that system of agriculture, for which they are remarkable, in soil that is never manured. It was Huang-ti who consolidated the various feudal states, and thus, in laying the foundation of a mighty empire, caused the gradual disappearance of that martial spirit which feudalism fostered, without which, and failing its modern western substitute, no nation can for long remain independent.

Mr. Meadows, one of His Majesty's consuls in China, wrote 50 years ago, when seated on the Great Pyramid :—"These old blocks of stone I am sitting upon, what different peoples they have looked down on in this Nile valley below ! First, their old hewers flourished and fell. Then came the Persians. Then the Greeks came here and founded Alexandria. After them came the Romans. Egyptians, Greeks, and Romans have all utterly disappeared from the face of the earth. They have been followed here by Muhammedan Arabs—at first enthusiastic fighters, now mere 'baksheese hunters.' They, too, are vanishing. The Chinese started in the race of national existence with the oldest of the old Egyptians, long before this huge mound of stones was piled up. They outlived their ancient contemporaries. They outlived the Persians. They outlived the Greeks. They outlived the Romans, and they will outlive the Arabs, for they have as much youth and vitality in them as the youngest of young nations."

Now Mr. Meadows appears to have been a man of remarkable foresight, and his book is well worth reading. Fifty years is a very short space of time in the history of the Chinese, and they have already begun to fulfil his prophecy and to show in a quite extraordinary way that "youth and vitality" of which he speaks.

The Chinese Empire is composed as follows :—

	Area Square miles.	Population. Millions.
China Proper (18 Provinces) ...	1,500,000	410
Manchuria (3 Provinces) ...	360,000	8½
Mongolia ...	1,360,000	2½
Chinese Turkistan (Hsin-chiang) ...	550,000	1½
Tibet ...	460,000	6½

The total of Chinese Empire is, roughly speaking, 4½ million square miles, with 430 million inhabitants, or a quarter of the popu-

lation of the world. The area of China proper (*i.e.*, the 18 Provinces) is about one-third of the whole empire, but it is 23 times more populous. Comparing the Chinese and Indian empires geographically, we have :—

	Area in square miles. Millions.		Population. Millions.		Density per square mile.
Indian Empire	... $1\frac{1}{2}$	...	280	...	230
Chinese	" ...	$4\frac{1}{2}$	430	...	58

Approximately, the areas of India and China proper are equal, but China has about one hundred million more people, with a density of 270 to India's 230 per square mile. The frontiers of the two empires are contiguous for some 3,000 miles, of which about 800 form the boundary between China proper and Burma. The extent of territory and density of population of the 18 provinces of China proper require some further elucidation in order that our minds may form a true estimate of their importance.

The Province of Chih-li, in which stands Peking, the capital of the empire, has an area equal to that of Austria, with only three million fewer inhabitants. Shantung, in which are situated British Wei-hai-wei and German Kia-chow, though smaller than England and Wales by some 3,000 square miles, has over 38 millions of people to 30 millions of England and Wales. Kiang-su, in which lies Shanghai, is a little larger than Portugal, whose $4\frac{1}{2}$ million inhabitants have recently caused such a stir in Europe, and there are $3\frac{1}{2}$ Chinese in Kiang-su for every Portuguese in Portugal. Korea was an empire no bigger than the central China province of Hu-nan, yet it gave considerable trouble, causing two great wars (Chino-Japanese and Russo-Japanese) before it became an integral part of the Japanese Empire, and there are three Hunanese for every Korean! Away in the south-west of China is Ssu-chuan, the land of the four streams, corresponding to the Punjab, land of five rivers, in India. The area of Ssu-chuan is 218,500 square miles; that of the Punjab 134,000 square miles. There are said to be 68 million Ssu-chuanese compared to the 25 millions of the Punjab. Kuang-tung, with the great city of Canton close to Hong-Kong, is smaller than Italy, yet has an equal population—32 millions, or more than England and Wales. Lastly there is Kuei-chow, the least populated of all the 18 provinces and with an area greater than that of Scotland and Ireland combined and having one million more inhabitants (nearly 8 millions). These figures speak for themselves, and in comparing them we should remember that the Chinese are not savages or even semi-civilised, but are a quiet, orderly, thinking, industrious, though simple folk, occupying a territory for the most part highly cultivated, with but few large tracts of jungle as in India and without waterless deserts. Moreover the whole is linked up by a system of navigable waterways, the like of which is not to be found on a similar scale in any other country in the world.

In order to get some idea of the extent to which navigation is carried, we may compare the Yangtze with the Ganges. Let us call

Shanghai—Calcutta.

Hankow—Cawnpore, 600 miles up-country.

Ichang—Ambala, 370 miles further.

Chungking—Peshawar, 400 miles further.

Suifu—Kabul, 100 miles further still, or about 1,500 miles from the sea.

Now if India were China, H. M. 1st class battleship "Glory" could anchor off Cawnpore; large river steamers, like those on the Mississippi, could ply daily to Ambala; small steamers and river gun-boats could visit Peshawar and Kabul; while small sailing craft would penetrate into the back-blocks of Kashmir, Baluchistan and Afghanistan. It is essential to grasp this fact, because it enables us to understand how the Chinese have got on without railways, and how the naval powers of the world have such an influence over the Chinese Government; for when, may I ask, will the Chinese have a navy and fortifications capable of repelling the attack of even *one* of the great navies of the world?

Broadly speaking the Chinese have employed for centuries four great systems of transport:—

In the north—carts in the plains and mules in the hills. In the centre—wheel-barrows and coolies; and in the south coolies only. Boats everywhere where water is.

Railways have now to be added.

There are many points of similarity between China proper and India, and between Chinese and Indians, but there are three great differences which are more important than these similarities:—

- (i) The water-ways of India are scarcely used at all for navigation; whereas the Chinese will haul their excellently made craft, wherever a plank will float.
- (ii) The Indians are obsessed by caste prejudice; the Chinese are homogeneous, and have only the usual social distinctions common to all civilised countries.
- (iii) The great majority of Indians do not eat meat; the Chinese will eat almost anything edible by man.

Politics and railways are synonymous terms in the Chinese Empire, and I therefore invite attention to the accompanying map showing the state of railway construction in the empire at the present time. It is not my intention to burden the reader with statistics, but a subject having so important a bearing on the future prosperity and civilisation of the Chinese, and affecting military operations in the first degree, deserves a few minutes of our attention.

In September 1907 railway construction had reached the following figures in round numbers:—

Constructed.	Under construction.	Projected.	Total.
Miles.	Miles.	Miles.	Miles.
3,600	... 1,300	... 4,000	... 9,000
The mileage on the map gives:—			
5,000	... 2,300	... 4,350	... 116,00

Therefore in the short period of about three years China has increased her open line by 1,400 miles and construction by 1,000 miles—a very fair rate of progress ; but China has still only about one-sixth of the open mileage of the Indian Empire.

The Chinese are keen, very keen on railways, and the question is now mainly a financial one. A system of state railways—at least in theory—has been evolved. This is important from a strategic point of view. But at present there is no need for China to develop into a first class military power, and thus she can devote her energies to railway construction.

Mr. Kent, in an exhaustive book on the subject, thus summarises the outlook :—

"The policy of the future should be to weld the existing railways as far as possible into one uniform and interdependent system, under a central authority, assisted by competent advisers. Chinese Government, foreign, and commercial capital should be combined to construct future lines. By this means, in course of time, the railway system would become a great national asset. These things are possible. It remains to be seen whether China has the will to face the present position, and, forestalling her effete policy of seclusion, will recognise her opportunities and inaugurate a policy that will be at once consistent with her duty to herself and the obligations incident to citizenship of the world."

There are other important considerations affecting railway construction, such as physical difficulties and the effect of climate on constructive effort. Within the empire are to be found every kind of physical feature and climate. The people, though of one type and wearing one style of dress and coiffure, vary in physique and temperament to a considerable extent. The effect of the bitter cold, dry atmosphere of Northern China and Manchuria has been to produce a harder, more robust, though perhaps less intelligent and excitable race than are the people of Ssu-chuan and Southern China, who have to endure a hot damp atmosphere. The results on railway construction are shown by a much greater mileage of open line in the north than in the centre and south.

The resources of the Chinese Empire are very great. Speaking generally Northern China is a wheat, millet, and bean producing and consuming country. Central and Southern China depend more on rice and sugarcane. There are immense deposits of iron and coal scarcely touched as yet, while nearly all the other metals, including gold, silver, and copper, are to be had. Though famines occur, they are seldom very extensive, nor of long duration ; with the improved communications which railways afford, they are likely to be fewer still and less widespread. When there is scarcity, Government steps in and forbids the export of grain.

Thus, though many regard China as a far-distant land with an immense population, but wanting in all that others possess, the truth is that China needs neither export nor import, and can do without foreign intercourse. With a fertile soil producing every

kind of food, a climate which favours every variety of fruit, and a population which for tens of centuries has put agriculture, the productive industry which feeds and clothes, above all other occupations, the Chinese have everything necessary, so far as material is concerned, to develop into a first-class power.

At the present time, the resources of the Chinese Empire are not exploited to even 20 per cent of what they might be. The four chief reasons why this is so are:—

- (1) Alien dynasties have kept back the people in order to maintain themselves in power.
- (2) The teaching of Confucius, or rather the beliefs and customs which time has woven around his system of morality, has tended towards conservatism and inaction.
- (3) All that appertains to the great geomantic system of the Chinese, comprised in the simple expression "Feng-shui," that is "wind-water," or that which cannot be seen and that which cannot be grasped, has prevented the people disturbing the soil.
- (4) Lack of capital and the knowledge as to modern systems of financial enterprise has forced them either to leave things alone, or to resort to foreign aid.

The Chinese speak one official language, called Kuan-hua or Mandarin, which is understood by the educated throughout the empire; but there are many dialects, some of which, like Cantonese are practically, from a colloquial point of view, different languages. But there is one common basis, and by it those who can read and write 700 ideographs can, from a soldier's point of view, communicate their needs to one another.

Some people probably believe that the government of the Chinese Empire is very autocratic. This is a mistake, at any rate, for China proper. With the exception of the United States, there is no great nation where democracy has had such freedom for many centuries. The government of China is entirely based on the patriarchal system which regulates family life. The book of "Great Learning" speaks thus:—"There is filial piety, therewith the sovereign should be served. There is fraternal submission, therewith the elders and superiors should be served. There is kindness, therewith the multitude should be treated." The Central Government has been content to allow its viceroys and governors a free hand so long as they remitted the fixed revenue and kept the peace. In the "Odes" of the Chou dynasty, which lasted from B.C. 1122 to B.C. 225—the feudal age, when China consisted of a number of vassal states—we are told this story:—"Duke Huan asked Kuan Chung—'To what should a prince attach the highest importance?' 'To God', replied the minister, at which Duke Huan gazed upward to the sky. 'The God I mean, continued Kuan Chung, is not the illimitable blue above. A *true* prince makes the people his God'."

The Central Government, however, vigorously maintains its control, firstly, by constantly putting into operation, in the most

autocratic fashion, its right to remove from office any official in the empire at a moment's notice, with or without enquiry ; and secondly, it is the custom, when a man becomes rich, to bring him to Peking to squeeze ; or else to send him to a post the emoluments of which require to be largely increased from the private purse. But the people have a lot to say in the appointment of officials, and much of the local administration is carried on by them. If ever it were true that a people deserve and get the government they have, it is true of the Chinese ; for it is the people's hereditary right to rebel against what they may consider an unjust official, in order that their grievance may attract attention and be remedied, either by the removal of the offending official, or by compromise. The people of China speak of their emperor as "Huang-ti-liao-tzu" meaning "Father-Emperor"; their district magistrates or collectors they call "Fu-mu-kuan," that is, "Paternal Governor." Confucius and his disciple Mencius justify the dethroning, and even the murder of a bad ruler. What wonder then that rebellions on a large scale have occurred over 50 times in 2,000 years; and that local rebellions are almost yearly events. It is important to understand this, as otherwise we are apt to be misled when Reuter wires concerning disturbances in China. Rebellions in China are of two kinds. Those which are anti-dynastic and semi-religious, these are serious ; the others are local risings against a real or imaginary grievance, which may be regarded as safety valves for a country not yet ripe for representative government where defective communications and the slow transit of news make rapid redress by the central authority extremely difficult.

The tendency since 1900 has been to tighten the hold by the Central Government ; and this is very necessary if the Chinese are to remain an empire. There is in reality a certain similitude between the United States of America and the Chinese Empire ; and it is not at all improbable that representative government, which, it seems certain, will be introduced within a decade, will thrive in China to such an extent as eventually to lead to a republic. The Chinese, if they are to defend themselves against the world, have got to become patriotic, and in arriving at that goal they may easily swamp autocracy. These are the days of united states, and the United States of China are not more improbable than those of South Africa and South America. The introduction of a National Assembly in China will bring about such changes as no wise man may attempt to prophesy ; for it will mean freedom to the brains of a people who, for centuries, have regarded brains as coming even before love. The Chinese are a people eminently fitted for representative government, and with it may come national military service, along with national education—the latter is already making rapid strides. What all that may lead to, who shall say ? But it will take time ; perhaps 30 to 40 years.

We may now glance at a few of those characteristics of the Chinese, which have a special bearing on a nation's ability to become a great military power.

First, as to their religions. It is worthy of note that the Chinese word for religion is "Chiao" which means "instruction." According to Han Wen-kung, poet, philosopher, and statesman, who lived A.D. 768—824, "of old there was but one faith." Now there are three state religions, and five officially recognised. These are :—Confucianism, Buddhism, Taoism, Muhammadanism, Christianity. The first three are inextricably mixed up together, so that a Chinese may easily belong, and as a matter of fact the majority do belong, to all of them. Buddhism and Taoism are decaying. Muhammadanism is non-fanatical, and the Celestial followers of the Prophet, of whom there are over 25 millions, are a long way behind their co-religionists in other parts of Asia. Christianity has been far less successful than Muhammadanism in proselytising the Chinese. Confucianism, though not intended by its great founder to be more than a system of morality to guide the good citizen through the troubled waters of his earthly existence, has gradually got such a hold of the people as to constitute their chief and real religion. The keystone of Confucian philosophy is that man is born good. Reduced to bed rock, it is belief in one God, in spirits—mainly ancestral, and in the strict observance of certain rites to propitiate those spirits and to facilitate their existence in the world in which they may happen to be. The worship of spirits is as old as man ; but it was Confucius' teaching which caused ancestral worship and the belief in the spirit world to reach the hold on the Far Eastern mind which it has attained. It was he who stereotyped that remarkable filial piety, respect for authority, and law-abiding nature, which the people of the Far East received from their ancient ancestors, and which they now exhibit in a manner that, to us Westerns, is not easily intelligible ; but which to them has a reality not far short of the good Christian's belief in the three-fold personality of the Godhead. Here is what Confucius said on the subject of spirits—

"How abundantly do spiritual things display the powers that belong to them. We look for, but do not see them ; we listen for, but do not hear them ; yet they enter into all things and there is nothing without them. They cause all people in the empire to fast and purify themselves and array themselves in their richest dresses, in order to attend at their sacrifices. Then, like over-flowing water, they seem to be over the heads, and on the right and left of their worshippers."

Christianity in China continues to make steady progress, and the future is full of hope for those who believe that China's salvation lies there. Lord William Cecil states in his book that, at the interview he had with the late Chang Chih-tung, that remarkable Viceroy asked him what line would be taken in regard to Confucian learning in the proposed new University. Lord William replied, that Christianity and Confucianism need not be opposed, and the teaching of the Sage would be respected and encouraged. The Viceroy remarked, "who could but approve such a scheme ?" It is on some such understanding that the future spread of Christianity among the

Chinese will depend. A Christian climate is being introduced all over Asia, and it is likely, perhaps, to suit the Chinese best of all.

In addition to the above religions, there is belief in what, for lack of a better term, we may call "materialism"—the teachings of a number of early philosophers tending to deny the existence of a God.

Perhaps also it may be news to some to learn that there are still about 300 Jews remaining of the colony who came to China overland after the Captivity, carrying the Pentateuch with them, and settled in Honan Province. They built a synagogue at Kai-feng Fu in 1164 A.D.

Some may wonder what all this talk about religions has to do with China's future as a great military power. The answer may be found in another question. What part has religious belief played in the great world struggles for national existence in the past; what is it to do in the future? Taking quite recent history in China, it was Christianity which caused the T'ai-p'ing rebellion: it was Taoism, anti-Christian feeling, and fanatical belief in spirit working and immortality, which had a good deal to do with the upheaval of 1900. The belief in the actual existence of all ancestors and their power to feel and see what is going on in this world, was well illustrated by Admiral Togo in his thanksgiving service after the victory of Tsushima. It was this belief also, together with their spirit of Bhashudo, something akin to the knight-errantry of the middle ages which flourished under their feudal system abolished only in 1871, which carried the Japanese *samurai* (*i.e.*, warriors, military class, or gentry) into the Russian trenches. Similarly it was their religious belief in their God and their Emperor or Little Father, which made those brave but ignorant Russian peasants stand up again and again against a victorious foe. Feudalism in China was officially abolished 200 years before the birth of Christ, and has been actually dead over 1,500 years. So also the Chinese military class, if there really ever was one, has ceased to exist centuries ago. The warriors of China have been invaders and their descendants, and these have themselves become absorbed by that spirit of peace and good-will towards men which is part of a pure Chinese man's existence. The profession of arms in Japan has been honourable from the beginning. In China, if it once was so, it has sunk until to be a soldier is a last resort. The proverb says, "A lad good for nothing can at least sell cakes; then who would be a soldier?" That spirit is, I firmly believe, slowly changing, but how long will it take to kill, and to build up a 20th century army and navy (for the former is no use without the latter) capable of dealing with a first-class power. In the index to a book of over 2,000 Chinese proverbs and sayings, the words "Army" and "Military" do not appear. Under the heading "War" is one proverb, and under "Soldier" are two. Thus although both Chinese and Japanese have possessed for centuries, and still possess, in their ancestral worship a religious belief which forces them into action, the Chinese, having lost feudalism and with it the military class some 200 years before Christ, lack what the Japanese have retained almost to this day.

The Chinese is first and before all a trader, a buyer and seller of something. There is no such thing as a fixed price in any transaction. From that comes the spirit of compromise. They love to pit brain against brain, and to reach agreement without resort to force. Once agreed, their word (except perhaps in war) is better than some people's bond. But what general, what nation, ever came successfully through a great struggle who entered it with a spirit of compromise uppermost in the mind? The Chinese is also a born gambler. Little children gamble in the streets for sweets and cakes. The coolie tries his luck with his hard-earned wages for a banquet, but goes to bed hungry instead. The Government gambles with the taxes, concessions, and loans.

All the efforts of the Chinese Government during the last two hundred years have been directed towards repelling invasion. The expeditions against Tibet, Nepal, Burma, and Turkistan, were either due to ambitions Manchu or Mongol generals flushed with conquest, or to the necessity of quelling rebellion. In fact the spirit of fight shown by the Chinese during the 17th and 18th centuries was alien rather than Chinese. No single war on China's frontier since A.D. 1700 has been begun by the Chinese. In 1790 it was the Gurkhas who invaded Tibet, as did the British in 1905. A characteristic of the Chinese which must be reckoned with is his pride of race, and fear of "losing face," as they call it, i.e., fear of public disgrace. Hence, though frequently they would prefer to let an insult pass, they feel bound to make a show of fight, and by doing so, although they may be defeated, they, according to the Chinese standard, save their face. But there is no real desire to fight. Neither is there fear of death when there is any object to be gained by facing it, whether it be for daily bread, or to protect the home, or in the ordinary course of duty, or, to "pu tiu lien," that is, not to lose face.

In reviewing the chief characteristics of the Chinese with the object of appraising their value for war-like purposes we should certainly consider the women. The general public may be inclined to think the Chinese women are down-trodden and without influence in national affairs. But such is far from being the case. I need only mention that extraordinarily able woman, Tzu-Hsi, the late Empress-Dowager. According to Lord Robert Cecil :—"The position of women in China is neither so low as that which they occupy in India, or among Muhammadans. Neither is it in any degree so high as the position of women in western lands. The woman is completely subject to the man; till she marries she is subject to her father; when she is married she is subject to her husband, and if her husband dies she is then subject to her son, and she rarely

* In fact so meritorious is it for a widow to remain such, that very splendid memorial arches are erected by the local people all over China to commemorate the deed.

The Chinese woman is not educated as a rule, because both public opinion and Confucian philosophy regard her as mentally inferior to man. In Chinese thought everything is divided into Good and Evil (*i.e.*, the male and female) principle—Yang and Yin—light and darkness. The woman is distinctly Yin. She is necessary to man, but is inferior. To sum up, I would say that the children are brought up in China under too strict discipline and women are allowed too little freedom; but, nevertheless, the women of China are advancing rapidly towards higher education, and greater freedom and influence must be reckoned with in assessing China's future prospects.

The actual state of the military and naval forces of China is not, when compared with those of other great nations, very far advanced. Her navy is quite insignificant, and in view of the absence of a proper system of national finance and of the scarcity of money, it will be years before she can build up even a third-rate navy. As to the army, although there has been progress, and improvement is continuing, yet is the Chinese Army a long way behind that of other nations. The United States of America, the British, and the Chinese, are the only remaining states who have voluntary enlistment. Should the Chinese adopt national service, matters may improve. The Government has been making, during the last few years, strenuous efforts to raise and equip a modern army on the lines of the Japanese. The prime actor in this movement was Yuan Sihh-kai, now banished to his home.

An edict of October 1907 ordered the raising of 36 divisions of modern-style troops, called Lu Chun, in the different provinces, to be ready by 1912. We are in 1911, yet of these 36 divisions only 10 divisions and 22 mixed brigades have been formed, which on a peace footing total 212,000 (to be increased to 230,000 in war), and 260 field and 574 mountain guns (to be increased to 293 and 635, respectively, in war time). These are strategically distributed in three main groups:—

- (a) In the neighbourhood of Peking, Tai-yuan Fu, and Kai-feng Fu.
- (b) Around Wuchang, Nanking, and the Central China cities.
- (c) Isolated divisions in Manchuria, Yun-nan, Ssu-chuan, Kan-su, and Chinese Turkistan, etc.

A modified form of conscription is in force. The cavalry may at present be disregarded, though there is a good supply of small sturdy ponies within the empire. No large horses are bred within the empire; mules up to 14 hds. 2 in. are numerous and universally used in the northern provinces. The armament is very defective, as is the quality and supply of ammunition. A General Staff was inaugurated in 1909.

Every effort is being made by improving the position of military officials in the table of precedence to remove the stigma attaching to military service. Besides the regular army, there are some 250,000 provincial troops—of small use except for helping the civil officials in their duties of maintaining internal force. They would

of course be called upon to fill vacancies in the regular army during war.

This nucleus of a great army, with its arsenals, factories and magazines, which has been formed, will, if China is allowed to remain at peace with the world for a considerable number of years, go on developing. It is a question mainly of finance, for, though China is potentially rich, she is actually poor. But in reckoning its future value we have to consider the following serious defects:—

- (a) No national budget. Military expenditure is met hazard.
- (b) Lack of initiative, with mutual distrust and jealousy.
- (c) Medical and transport services wholly inadequate for operations on a big scale.
- (d) No experienced generals in the art of modern warfare.
- (e) A Central Government incapable of carrying on war with a great civilised power.
- (f) Owing to lack of money, and for other reasons, the practical training in the field and musketry and gun practice are quite insufficient.
- (g) The men do not yet get all their pay, though they are paid with greater regularity than ever before.
- (h) Great diversity of armament.
- (i) Last, but not least, lack of the spirit to fight, and of a warlike, or military class from which officers can be obtained.

This brings me to the question of the value of this new army as a fighting machine—potential not present value. No army in modern times will fight except for a cause which appears to the bulk of its soldiers a just one; one in the interests of their own hearth and home. The more intelligent and civilised an army, the more is this the case. If this be true of other nations it is doubly true of the Chinese, for to them home means all, everything worth living or dying for. It is represented by the character "chia," which is composed of the character for "pig" placed underneath that for "roof." This may seem to us a poor conception of home, but was ours any better, I wonder, a thousand years ago. Chinese ideas of home are the same now as then. They change their ideas slowly. Consequently, before one can expect a Chinese army to stand and fight to the death, each soldier (or at least a majority) must see clearly that it is his interest to do so—that he is fighting for the existence of his hearth and home, and, through it, for national independence. At present they are far from comprehending this. At learning drill, manœuvres, military exercises, and all about modern warfare they are adepts. Under favourable conditions, they quickly acquire the proficiency and accuracy of the German Imperial Guard on the parade ground; while at examinations for fitness for command, or at military sketching, reconnaissance, etc., they soon learn to excel. What they lack individually is the will to fight for what, hitherto, has been to them an incomprehensible object. Therefore it will

probably be several decades before the Chinese are able to grasp the meaning of the Japanese soldier's maxim—"Watakushi wo sareti oyake ni hozuru"—the casting away of self to save the commonwealth.

We have now to answer the question, "What probability is there of the Chinese developing into a great military power, I won't say ever, because that would be foolish, but let us say during the next 25 years?"

I wonder how many of my readers have studied the "Art of War according to Sun-Tsu," a book which Professor Giles declares to be "the oldest military treatise in the world." This ancient Napoleon seems to have waged his wars about the 5th century before Christ, yet most of the maxims of war are to be found in his collection.

In his introduction to the book Professor Giles remarks:— "Accustomed as we are to think of China as the greatest peace-loving nation on earth, we are in some danger of forgetting that her experience of war in all its phases has also been such as no modern state can parallel. Her long military annals stretch back to a point at which they are lost in the mists of time. She had built the Great Wall and was maintaining a huge standing army along her frontiers, centuries before the first Roman legionary was seen on the Danube. What with the perpetual collisions of ancient feudal states, the grim conflicts with Huns, Turks, and other invaders, the terrific upheavals which accompanied the overthrow of so many dynasties, besides the countless rebellions and minor disturbances, it is hardly too much to say that the clash of arms has never ceased to resound in one portion or another of the empire."

Knowing full well the truth of the above statements, what then, can I have meant when, on the 3rd October 1899, in a lecture before the U. S. I. on "Things Chinese," one of the first remarks I made was "China's military power may be summed up in the one word *nil*?" Yet only nine months later, the navies and armies of eight great nations were busily endeavouring to quell disturbances and prevent their spreading, and in relieving diplomatic corps besieged in that wonderful city, Peking.

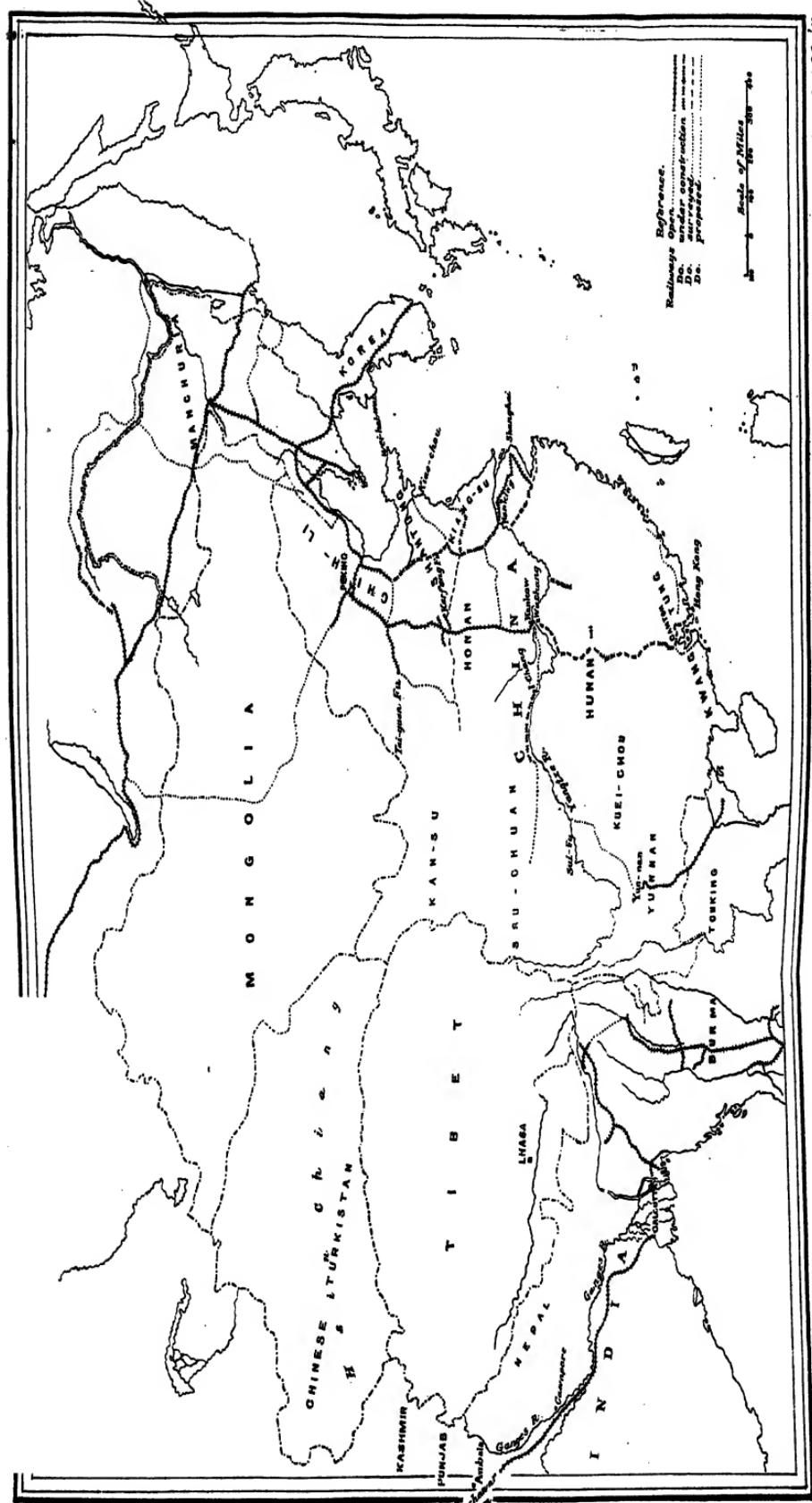
Again, before the Royal Geographical Society in 1907, I practically corroborated that statement, for, in referring to the decline of the former magnificence of Jchol, the summer residence of the Imperial Court, 120 miles north-east of Peking, I said, "These facts represent with truth the state of affairs regarding two of the most important things for the future welfare of the Chinese—religion and defence. Both have been allowed to reach a state of decay throughout the empire which it will take decades (perhaps centuries) to remedy."

Now what I meant in 1899 and again in 1907, and what I mean now when I maintain that China's military power is still *nil* is this:— Notwithstanding that Chinese text-books impress upon the students the duty of developing the power of China, the danger of military weakness, and the importance of self-sacrifice for national interests: in spite of all the fighting, in spite of all the reorganizing of her

forces, in spite of the reports of competent judges to the contrary, China's military power, when put in the scale against that of any of the five greatest military powers of the world, is insignificant; it may be disregarded altogether from the point of view of aggression; and it will take at least 25 years before she can stand up with any chance of success against a determined attack by either the Russian, Japanese, German, French, or British Empires. I have arrived at this conclusion because the great body of Chinese sentiment has been through the ages, and still remains to-day, consistently pacific, intensely opposed to militarism in any form. There is no sort of analogy between the Chinese and Japanese in regard to warlike activity and aggressive enterprise.

Lord William Cecil wisely remarks "it is the continuance of China's military weakness rather than the growth of her military power which is most likely to disturb the political atmosphere. ... The integrity of the Chinese Empire is for many reasons a most desirable thing, and that integrity can best be maintained by an increase of China's military power." But desire it however much we may, to me it seems unlikely that China's military power will be more than sufficient to maintain order in her own territories for at least 25 years to come. Sir John Jordon, writing to Sir Edward Grey the other day about the opium question, remarked : "It is true that the Chinese Government have in recent years effected some far-reaching changes, of which the abolition of the old examination system is perhaps the most striking instance: but to sweep away, in a decade, habits which have gained a firm hold upon eight millions of adult population is a task rarely attempted with success in the course of history." Now the Chinese Government issued its first drastic edict against opium 167 years ago. Yet competent judges declare that the opium habit, as a national vice, has received its death blow, and that, although it may be a generation before it is eradicated, each year brings improvement. Surely, then, some will say, a nation with the moral force to overcome a national vice, such as opium-smoking, may be expected also to remove the inertia which prevents it becoming a nation in arms. True the opium habit is only one hundred years old, whereas the love of peace and disinclination to fight is more than a thousand. Can a decadent empire, which has allowed its military spirit to die centuries ago and whose integrity has been maintained by alien peoples, recover itself? Time alone can answer this question. Meanwhile, ought not we Westerns to assist by every means in our power a quarter of the human race in their heroic efforts to overcome their own weakness?

Truly have the Chinese succeeded in fulfilling the Bible prophecy "They shall beat their swords into plough shares, and their spears into pruning hooks." There is now, however, renewed hope that, since the laws of nature require that a nation shall not stand still, but must either advance or disappear, and since the Chinese have shown great energy and determination in overcoming national supineness during the last decade, so, perhaps, they may, in the



distant future, evolve into a military power whose word shall hold its own in the councils of Asia—may be of the world.

China may again be invaded. Or, possibly, some Chinese hero of the old type will arise, who, learned in Western science and methods, imbued with that martial spirit without which revolutions cannot be accomplished, and carrying with him the reformed younger generation, will transform this splendid people into an armed host, capable, if not of becoming a Yellow Peril to terrorise the world, at least, of preserving its own integrity, and thus helping to maintain the balance of power and the peace of Asia.

THE OPERATIONS OF SIR HUGH ROSE IN CENTRAL INDIA FROM JANUARY TO JUNE 1858.

With notes on the possible influence which the present railway system might have had on their character.

BY MAJOR W. D. DAUNT, 39TH (K. G. O.) CENTRAL INDIA HORSE.

During the period from the outbreak of the Mutiny at Meerut in May 1857 to the end of the year, the condition of Central India had grown steadily worse. In spite of every endeavour on the part of the political authorities to prevent communication between the disaffected native troops of the regular army and the soldiers of the native contingents, which unfortunately were recruited from the same sources as the sepoy, these latter, *viz.*, the contingents of Gwalior,* Bhopal, and Indore, had thrown up their allegiance to the British Power. The native troops of the regular army at Jhansi, Saugor, Jubbulpore, and other military stations throughout Central India and Bundelkhand, had also broken out into open revolt, and had either joined the forces of disaffected rajahs in the district, who were continually issuing from their forts to plunder the surrounding country, or had thrown in their lot with the rebel force under Nana Sahib and Tantia Topi, which was operating north of the Jumna. Not even did the fall of Delhi in September 1857, though it prevented insurrection in the Punjab, nor yet the rebel defeat at Cawnpore in December 1857 by the commander-in-chief, bring tranquillity to Central India. Oudh was still in revolt, and Lucknow was not relieved till March 1858.

Political considerations now demanded that Indore and Bhopal should be established on a satisfactory footing; that the British station of Mhow should be strongly held and communication between Mhow and Gwalior firmly established; and that an intermediate post should be placed either at Saugor or Goona. Also, that the country to the east of the Grand Trunk Road should be restored to order and pacified.

Only a small proportion of British troops were available for this campaign, but each man felt that the eyes of the nation were upon him, that retreat meant ignominy, and that death was preferable to defeat. No amount of fatigue prevented the British soldiers from answering a call to arms, and in this respect the loyal native troops, who fought on the side of the British, were in no wise inferior to their English comrades. The greater part of the field force had just concluded a successful campaign in Malwa. They held their enemy in contempt, and were in addition imbued with a

* The places mentioned in this paper, and the course of the operations, can be readily followed on any railway map of Central India.

strong spirit of revenge. English women and children, murdered in cold blood, called for heavy retribution. All they asked for was close conflict with the enemy. Furthermore, the troops were well disciplined, their rifle fire was accurate and sustained, and the fire from their field and heavy guns was rapid and well aimed.

Apart from those considerations of caste which led to the outbreak of the Sepoy revolt, the mutineers were purely mercenary troops ; they took service with whoever offered the highest pay and where there was the greatest chance of obtaining plunder. They had no cohesion, and though they had been well trained under their European officers, there was no discipline. Their guns, moreover, were slow and inefficient. They were badly led ; as with the exception of perhaps Tantia Topi, and to a lesser extent the Rani of Jhansi, they had no leaders with any tactical skill.

Sir Hugh Rose's force comprised two brigades of all arms of a total strength of about 6,000 men, of which one-third only were Europeans. Supplies for fifteen days accompanied the troops, and a large quantity of ammunition was taken. Owing to the small number of the troops it was not possible to keep up communication with their base and establish dépôts *en route*. So that whenever a post was taken or a halt made for any length of time, stores were replenished. In this respect much assistance was given by loyal natives, such as the Begum of Bhopal and the Maharajah of Gwalior.

The strength of the mutineers in the various actions fought was very variable. They were never less than 12,000, and sometimes as much as 24,000 to 25,000. Each man practically carried on his person sufficient for his immediate wants, and, the country being friendly, there was no difficulty in obtaining supplies. As long as they were well paid matters went smoothly, but once the resources of their employer were exhausted they transferred their allegiance elsewhere. It was owing to this that the rebel force varied to the extent it did, and also to the addition to its strength of such troops as the Gwalior Contingent, numbering some 8,000 men, cavalry and infantry, and four field batteries.

The country known as the Central India Agency included Gwalior, Western Malwa, Indore and Bundelkhand and a portion of the Central Provinces known as the Saugor and Narbadda territories. This extensive region comprised the great tableland of Malwa, a country highly cultivated and affording abundant grass for grazing huge herds of cattle. Small conical and flat-topped hills and low ridges are typical of this country, which is watered by many rivers, including the Banas, Chambal, Sindh, and Betwa draining into the Jumna on the north, and the Narbadda with its tributaries on the south. The district of Bundelkhand, in which most of the operations took place, is a rugged country full of passes through rocky hills, thick jungle, deep *nâlas*, and winding streams well suited to guerilla tactics. The plains, though arid in the hot weather, are well cultivated. The chief characteristic of the whole of the plain country from the Jumna to the south of the

Tapti river is the black cotton soil, which becomes almost impassable after heavy rain, but in summer is baked hard by the heat of the sun and cracks into innumerable fissures. One metalled road traversed the country from north to south, the Grand Trunk Road from Bombay to Agra, 446 miles of which passed through Central India. All other roads were unmetalled country tracks, the *nalus* were not bridged, and progress in consequence, especially for the guns, was often very difficult.

The climate of Central India is remarkably healthy. On the plateau it is fairly equable, the maximum temperature rising from 77° in January to 103° in May, while in the low-lying country, i.e., Jhansi and Gwalior, it rises from 74° to 107°. There are, therefore, no very great extremes, and had the troops been furnished with a suitable head-dress and proper spine-protection, there would have been fewer casualties through heatstroke and exposure, which accounted for far more men than did wounds received in action.

The campaign of Sir Hugh Rose was part of a large combination, and was rendered possible by the movement of General Roberts with a Bombay force into Rajputana on the one side, and General Whitlock with troops from Madras on the other. Of these three columns that of Sir Hugh Rose, operating from Mhow, was to sweep the country from that place to Kalpi on the Jumna, relieving Saugor and recapturing Jhansi *en route*; that under General Whitlock was to cross Bundelkhand from Jubbulpore to Banda. These two columns acting on parallel lines, less than 150 miles apart, were hardly ever in communication with each other. Each had its separate task, and there was little or no co-operation between them. They served to restrict the enemy to certain tracts and prevent concentration, but a most important axiom was neglected, *viz.*, to attack the enemy's main body with overwhelming forces and from convergent directions—separate to march but unite to attack. Owing to the nature of the country, i.e., mountainous and bad roads, lateral communication was very difficult, but, as will be shown later, these columns could well have united before Jhansi. Had they done so, and Sir Hugh Rose been put in supreme command, the campaign would have ended there instead of being prolonged for several weeks.

Had the present railway system been in existence, it may be taken for granted that the line would have been torn up in various places, bridges damaged or destroyed, and the telegraph thrown out of operation. Still, repairs could have been made, and had it been possible to keep the line and the telegraph open by the use of local levies—the detachment of regular troops for this purpose being quite out of the question owing to their small number—all difficulties of lateral communication between Sir Hugh Rose's column and that of General Whitlock would have been removed. The former could have made its base at Bhopal, and, once Saugor was relieved, have opened up the branch line between Bina and Katni as soon as the latter place was in possession of General Whitlock. The whole strategy of the campaign would thus have been altered in that the

two columns would have been able to unite when required. Also with the railway as a line of communication the enormous baggage trains attached to each column would have been dispensed with and much greater rapidity of movement obtained.

FIRST PHASE.

Sir Hugh Rose, than whom no better leader of men could have been chosen, took over command of the Central India Field Force at Mhow on the 17th December 1857. It consisted of two brigades, one at Mhow, 1st Brigade, and the other, 2nd Brigade, at Sehore. These brigades were constituted as follows:—

1st Brigade.—Brigadier C. S. Stuart, Bombay Infantry.

1 Squadron, 14th Light Dragoons,

1 Troop, 3rd Bombay Cavalry.

86th Regiment (2 Coys.)

25th Bombay Infantry.

2 Batteries European Artillery.

Sappers.

The remaining six companies, 86th Regiment, joined the Brigade at Chanderi in March 1858.

One company, Sappers and Miners, and a battery R. A., with a portion of the Hyderabad Contingent Field Force, (1st and 4th Cavalry) acted as advanced guard to this brigade, under Major Orr.

2nd Brigade.—Brigadier C. S. Stuart, 14th Light Dragoons.

Headquarters, 14th Light Dragoons.

Ditto 3rd Bombay Cavalry.

3rd Bombay European Regiment.

24th Bombay Infantry.

1 Battery Horse Artillery.

1 Field Battery.

Madras Sappers and Miners.

Siege train.

A detachment of all arms Hyderabad Contingent, i.e. some cavalry, 1st, 2nd, 4th companies artillery, 2 howitzers and a wing each of the 3rd and 5th Infantry.

As no serious opposition was expected before arrival at Jhansi, and in order more thoroughly to pacify the country, it was decided to move these two brigades independently and by separate routes; that from Sehore to proceed *viz.* Bhopal and Saugor, and the Mhow Brigade by the Grand Trunk Road *viz.* Indore to Goona, thence to Chanderi where it was proposed to combine forces. This separation of forces allowed longer marches and greater quickness of movement, and obviated the disadvantage of long trains of transport on unmetalled country tracks. It was sound strategically and all the more justifiable as the mutineers had no cohesion and were incapable of acting on interior lines, *viz.*, massing their forces to attack one brigade only.

To follow the movements of the 2nd brigade, which was personally commanded by Sir Hugh Rose. He left Mhow on the 6th

January 1858, and after waiting at Sehore till the arrival of the siege train from Mhow, he left there on the 16th idem with his whole force, together with 800 Bhopal levies, to attack the formidable fortress of Rahatgarh, 25 miles from Saugor. This place he reached on the 26th, at once invested it, and, having placed his breaching batteries within decisive range, effected a breach on the night of the 28th. At this time a diversion was caused by an attempt to relieve the garrison by the Rajah of Banpur, a chief who, by promise of extra pay, had treacherously incited regular native troops to mutiny and join his standard. This force certainly effected a surprise, but so great was the contempt of Sir Hugh Rose for this new adversary, that while redoubling his fire on the fort, he detached a small column of all arms to deal with them. The mere sight of this column was enough for the mutineers, who broke and fled. The same night the besieged, having lost all heart, evacuated the fortress, and though hotly pursued, succeeded in making good their escape. While in occupation of Rahatgarh, and before proceeding to the relief of Saugor, Sir Hugh Rose had another brush with the Rajah of Banpur. The enemy was completely defeated, but owing to thick jungle eluded pursuit. The fall of this fort of Rahatgarh cleared the country south of Saugor, opened up the road to Indore, and enabled Saugor to be relieved on the 3rd February, after it had been besieged for eight months.

The relief of Saugor opened the roads to the west and north, permitting communication between the 2nd brigade and the advanced guard of the 1st brigade under Major Orr at Goona. Communication was required to be established to the east with General Whitlock's column, but to do this the capture of Garhakola was necessary. This place was full of stores and ammunition, and was held by mutineers of the regular army. A long personal reconnaissance enabled Sir Hugh Rose to determine the weak places. Owing to the audacity of his attack and the good practice of his siege guns the enemy quickly lost heart, and on the second night of the siege the fort was evacuated. Only a small force had been detached from Saugor for this operation, so the full fruits of victory, only to be obtained by an efficient pursuit, could not be obtained.

Throughout all these minor operations the secret of success lay in showing no hesitation in pressing on an attack once the enemy was sighted. This always made up for inferiority in numbers, and never an action took place in which the British troops were not greatly in the minority.

Sir Hugh Rose spent ten days at Saugor, *i.e.*, 17th to 27th February, waiting for news of the arrival of General Whitlock's column at Jubbulpore. During this time he laid in supplies of food, forage, grain, clothing, etc., and was able to replenish his ammunition from the Saugor arsenal and make some useful additions to his siege train in the way of howitzers and heavy guns.

From Jubbulpore to Saugor the distance is under 100 miles, and yet the news that General Whitlock had arrived at the former

place on the 17th February did not reach Sir Hugh for some eight or nine days. Satisfied that his communications to the south were assured by the advance of General Whitlock from Jubbulpore, Sir Hugh Rose, having been joined by Major Orr's mounted troops, left Saugor on the 27th February *en route* to Jhansi. This was now his objective, but before he could reach it a junction had to be effected with the 1st brigade and a difficult country traversed. Strong forts had to be subdued and defiles forced.

On the 3rd March, after the fort of Barodia had been taken, the force reached the pass of Malthon. This was fortified and so strongly held by the enemy that a frontal attack was not considered feasible. It was decided to hold the enemy in front and make a wide flanking movement through the pass of Madanpur, some six miles distant. Though the pass was gained and the enemy suffered considerable loss, the action was faultily carried out, for the force told off to gain the flank made the turning movement in full view of the enemy, and the containing force for the frontal attack failed to push on and hold him to his ground. Despite these defective tactics the effect of this action of Madanpur was so great that the pass of Malthon and practically all the strong places south of Jhansi, Chanderi excepted, were evacuated.

So far we have followed the fortunes of the 2nd brigade. The 1st brigade left Mhow for Goona on the 10th January 1858. They were fortunate in having their way cleared for them by a small detachment of all arms of the Hyderabad Contingent from Mandesaur. Though the distance from Mhow to Goona is under 200 miles, the marches must have been taken very leisurely, or a long halt made at Goona, as it was not till the 5th March that the brigade arrived at Ramnagar, 56 miles east of Goona, within striking distance of Chanderi—a city stronghold famed in the time of the Moghul Empire. The fort was situated in a commanding position on a high sandstone ridge and was held by rebels strongly reinforced by those troops that had suffered defeat at the hands of Sir Hugh Rose. Considering that on the 10th March the 2nd brigade was at Banpur, within 40 miles of Chanderi, it is extraordinary that practically no communication or combined movement was made on the latter place. Chanderi was taken on the 17th March by the 1st brigade after a gallant assault, but the greater number of the rebels managed to escape, a very unlikely contingency had the two brigades worked together and the place been vigorously invested.

We now come to the chief object of the campaign, i.e., the capture of Jhansi. This place was the stronghold of rebel power in Central India, and was held by a Rani, who had just cause to complain against the British Government. Five years previously, on the death of her husband, there being no direct heir, the state had been taken over by the Government and all requests to recognise an adopted heir refused. The Rani was pensioned, held liable for her husband's debts, and no further attention paid her. This treatment, so different to that meted out to many other of

the native states of India, drove the Rani to extremes. In June 1857 she seized her opportunity, succeeded in exciting the native troops of the British garrison at Jhansi to mutiny, and in getting herself reinstalled on the throne. Whether she herself, as some authorities seem inclined to think, was directly responsible for the massacre of English men and women which accompanied the revolt, has not been clearly determined. For nine months this important fortress had been the refuge of all the troops that had mutinied in Central India. With its downfall the cause of the insurgents in this part of India would fall also. Its capture, therefore, was of the first importance.

On the 22nd March, the 2nd brigade having been joined by the 1st brigade from Chanderi, Jhansi fort was invested and the siege begun. Two days previous to this Sir Hugh Rose had received direct orders from the commander-in-chief to leave Jhansi and proceed at once to the relief of Charkhari, a fort held by a loyal rajah of that name, some 80 miles distant. The political authorities fortunately intervened and the order was not carried out. So little did Army Headquarters know of the movements of Sir Hugh Rose and General Whitlock's columns that orders sent to the former to relieve Charkhari should have been sent to the latter, who was at Panna on the 29th March, and could easily have quickened his march and relieved Charkhari on his way north to Banda.

The fort of Jhansi, situated on a high rock, was in the centre of a large native city surrounded by a massive wall. Its garrison numbered some 11,500 men, with thirty to forty guns. To capture the fort it was necessary to take the city first, and to do this the wall had to be breached. It was not till the 31st March that any progress was made, but on that day news was received that Tantia Topi, with an army of 22,000 men, including five or six regiments of the Gwalior contingents, and twenty-eight guns, was marching on Jhansi from Kalpi to relieve the beleaguered garrison.

Reconnaissance patrols, both strategical and tactical, were made little use of in those days, or Sir Hugh Rose would have had several days instead of a few hours' warning of the approach of this force. Also touch with General Whitlock's column would have been kept up. Though opposed by enormous odds, Sir Hugh Rose determined to continue the siege and at the same time detach a force of 1,500 men of all arms, only one-third of which were British troops, from his two brigades to engage this new enemy. Even this small force he divided in two, taking the command of one detachment himself and giving the other to the brigadier of the 1st brigade. By feigning a retreat he drew the enemy across the Betwa river, and in the early morning of the 1st April advanced to meet him with his detachment, sending that of the 1st brigade well out to his left flank to meet a body of the enemy that had separated from the main body and was advancing on Jhansi. To avoid being overlapped, Sir Hugh Rose detached his guns and cavalry to both flanks to take the enemy in flank. When full effect had been given

to this manœuvre, his infantry in the centre advanced and poured in a well aimed fire. The whole of the enemy's first line broke up into confusion and fled. The detachment of the 1st brigade were also successful in driving the enemy back on to their second line which, in spite of a masterly retreat across the Betwa river under Tantia Topi in person, was finally broken up and dispersed. The enemy lost all his guns and some 1,500 men, and was sent flying in confusion to Kalpi.

Elated with success, the troops now turned all their attention to the siege. On the 2nd April a breach in the wall was reported practicable, and as it was not possible to increase the number of breaches owing to want of ammunition, it was determined to assault the place by escalade. Early on the 3rd, storming parties advanced to force the breach and climb the wall. As the result of gallant and determined leadership, these parties were entirely successful, and the enemy was driven from point to point with great loss. Street-fighting continued during the 3rd and 4th, and on the night of that day, just as measures were about to be taken for the storming of the fortress, the Rani decided to evacuate it and fly to Kalpi.

Jhansi had been captured without any direct help from General Whitlock's column, though the latter had been urgently called on, and, as will be shown, could very well have given it.

General Whitlock was at Damoh on the 12th March. He took seventeen days, marching a distance of 80 miles to Panna. He could have done this in eight days without any serious discomfort and so have reached Panna on the 20th, Chhatarpur, another 45 miles, on the 24th, and Mau, another 40 miles, on the 28th. Here, at Mau, within 30 miles of the Betwa river, he could have come down on the rear of Tantia Topi's army at the battle of the Betwa on the 31st. There would then probably have been no battle of Kunch or siege of Kalpi, as Tantia Topi's force would have been utterly demoralised, if not annihilated. Furthermore, operations against the Rajah of Banda could have been undertaken later, and after Jhansi had fallen, by a combined force drawn from General Whitlock and Sir Hugh Rose's troops. This force of the rebels would consequently have been cut up and prevented joining their comrades at Kalpi. Had the above strategic combination been effected, Gwalior would never have fallen into the hands of the rebels, and the campaign would have practically ended on the 3rd April, after Jhansi had fallen instead of the 20th June when Gwalior was taken.

To return—In the action at the Betwa and the storming of Jhansi, Sir Hugh Rose lost over 300 men killed and wounded, several of whom were officers. The enemy lost over 5,000.

From the 5th to the 25th April, Sir Hugh Rose remained at Jhansi to replenish his stores and reorganize his force for further effort. This time his objective was Kalpi, a town on the Juinna, which served as the rebel arsenal, and which was well equipped with guns and warlike stores. There both Tantia Topi and the Rani of Jhansi had retired and collected their scattered forces. By the

capture of this place Rose would get into touch with the army of the commander-in-chief, and with his assistance be able to clear the country to Agra. It was therefore of great strategic importance. General Whitlock had defeated the Rajah of Banda and entered that place on the 19th April, so here were the two columns within 120 miles of each other and about equi-distant from Kalpi. Had they, even at this late period, combined and marched on Kalpi, not only would the rebels have been defeated more decisively than they were, but their powers for further mischief must have been destroyed and the campaign ended. The want of co-operation by General Whitlock was altogether inexcusable, as once Banda was taken his special mission had been accomplished. He did in fact finally decide to march to Sir Hugh Rose's assistance, but not until he had been reinforced. It was then too late, as Kalpi had already been captured.

To quell local disturbance and facilitate movement, Sir Hugh Rose marched on Kalpi in three detachments, but hearing that the enemy was advancing to meet him, and had taken up a strong position at Kunch, some 40 miles from Kalpi, he first combined his forces and on the 6th May made an attack on that place. The rebel force consisted of mutineers of the regular Bengal regiments, cavalry of the Gwalior contingent from Kotah, the levies of rebel rajahs, and the remains of the Jhansi garrison. By taking the enemy in flank and threatening their communications, their defeat was speedily brought about. Mounted troops were sent in pursuit, and though the enemy beat a most masterly retreat, due to previous training under British officers, they were finally routed and all their guns taken. Not a man would have escaped but for the heat of the day, which had so exhausted the pursuers' horses that they were unable to move, and once the enemy got into broken ground, all pursuit ceased.

So great were the dissensions among the enemy after this action, that had Sir Hugh Rose marched at once on Kalpi, he would have found that place practically deserted. Being short of ammunition, however, the British commander moved more leisurely, and it was not till the 15th May that he reached Galauli, six miles from Kalpi, where the enemy had now taken up a strong position. At Galauli Sir Hugh Rose was joined by a small force sent to him by the commander-in-chief, and at once made plans for attacking the enemy. The rebels had meanwhile been reinforced by the Rajah of Banda with 2,000 fresh troops, and it was this force, which should have been pursued and routed by General Whitlock, that had given them new life and enabled them to make a stand.

The town of Kalpi was protected on all sides by a labyrinth of ravines which gave excellent cover to the enemy and effectually barred all progress to cavalry and guns. Sixteen days were spent in skirmishing, the enemy being very bold in their attacks, and on the 23rd Sir Hugh Rose, in spite of the many difficulties he had to contend with, decided to make the assault. His men were utterly worn out and overcome by the heat, the enemy outnumbered him

ten to one, and the right flank of his position was insecure, resting on ravines between him and the river. This disadvantage the enemy thoroughly realised. Without waiting to be attacked, they made a feint on Sir Hugh Rose's left, and with their main force suddenly debouched from the ravines and attacked his right. It was a near thing, and but for the opportune appearance of a camel corps led by Sir Hugh Rose in person, sheer force of numbers would have gained the day. As it was, the enemy were driven back and hot pursuit followed. They evacuated Kalpi, lost all their guns and baggage, and dispersed over the country. The object of the campaign had been gained.

The force had suffered considerably—the hospitals were full of men down with disease and heatstroke, and from the general downwards there was scarcely a man in his normal state of health.

It has been shown that even without the help of the railway, supposing the present system to have been in existence, General Whitlock's column, in addition to providing the garrison for Saugor and securing Sir Hugh Rose's rear, could have materially contributed to his assistance. With the railway, the conduct of the campaign would have altered considerably. Sir Hugh Rose's column could still have marched on Kalpi, following the line direct from Bhopal to Cawnpore, but at Goona he could have got into communication with General Roberts, commanding the Rajputana Field Force at Kotah, and at Bina and Jhansi he could have established lateral communication with General Whitlock's column to Katni and Manikpur respectively. This latter column could have marched from Jubbulpore to Manikpur, could then have followed the line down to Banda, captured that place, and joined Sir Hugh Rose before Jhansi. The three columns could thus have worked in conjunction, and telegraphic communication have been maintained. The country passed through between the columns would have required to be cleared of the rebels, the same as was done without the railway, but this task would have been greatly facilitated by mutual assistance.

Kalpi occupied, Sir Hugh Rose considered his task accomplished, and in order to recruit his shattered health had applied to resign the command. Future events, however, prevented this. After the defeat at Kalpi the rebels retired to Gopalpur, some 40 miles south of Gwalior. Here it was decided to appeal to the religious and national feeling of Scindia's troops, and gain them over as allies, march on Gwalior, take that fortress, and make another stand against the British troops. In pursuance of this plan Tantia Topi, the Rani of Jhansi, and other leaders, at the head of a force of 7,000 infantry, 4,000 cavalry and 12 guns entered Morar. Scindia marshalled his forces and advanced to meet them, but the rebel emissaries had been only too successful—all his troops, his body-guard excepted, some 1,500 cavalry, 6,000 infantry and eight guns, went over to the enemy, and Scindia himself fled to Agra. These troops were the best drilled and organized of all the native levies.

Gwalior fell into the rebels' hands at quite the worst season of the year, namely at the end of the hot and the beginning of the rainy season, and if it was not promptly wrested from them, Tantia Topi would in all probability leave a containing force at Gwalior and march south with the bulk of his troops, thus raising the standard of revolt throughout the Deccan and Southern Mahrattas.

The news of the rebels only reached Sir Hugh Rose on the 4th June. He at once realised the gravity of the situation and resumed his command. The troops at his disposal were distributed as follows:—A portion of the 2nd brigade had to be left behind at Kalpi, but the remaining troops of that brigade, and the 1st brigade, with certain additional troops, had already started in pursuit of the enemy to Morar. A brigade of the Rajputana Field Force, under Brigadier Smith, which was at Chanderi, was put at Sir Hugh Rose's disposal and received orders to move to Kotah-ki-Serai, five miles south-east of Gwalior. Major Orr with the Hyderabad Contingent was detached to Panniar, some 30 miles south of Gwalior on the Grand Trunk Road, to cut off retreat to the south, and Colonel Riddell with a small column of all arms and some siege guns was to march on Gwalior from the direction of Agra. Thus four columns were moving from concentric directions on the enemy's main force at Gwalior and were estimated to reach their respective positions on the 19th June.

On the 16th June Sir Hugh Rose fought an independent and successful action at Morar, thus putting himself in a good strategic position. Another independent action was fought by Brigadier Smith, who had arrived with the Hyderabad Contingent and a small force sent from Jhansi at Kotah-ki-Serai on the morning of the 17th June.

It was during this latter action that the Rani of Jhansi, wearing a man's clothes, lost her life, being cut down by a trooper of the 8th Hussars. There is no doubt but that the treatment meted out to her by the Government of that day was one of the chief causes of the revolt in Central India.

Sir Hugh Rose, his 2nd brigade having been brought up to full strength, joined forces with Brigadier Smith on the 18th June, leaving a small force at Morar. Brigadier Smith's position was a faulty one; his left and rear were unprotected, and his baggage was within range of the enemy's guns. The enemy, on the other hand, were in a good position in strength on high ground, covering the city of Gwalior. On the following day, the 19th June, Sir Hugh Rose decided to take the initiative, and made a combined frontal and enveloping attack on the enemy's left flank, which soon won the day. The rebels were driven back and the heights taken. A vigorous pursuit by all arms followed; the city, the fort excepted, was occupied, and Sir Hugh Rose slept that night in the palace. The day had been won with the loss of 87 men killed and wounded. Of the following day, 20th June, the fort was captured by a *coup de main*, and the pursuit of the rebels was undertaken by Sir Robert Napier.

in command of the mounted troops left at Morar. So well was this pursuit conducted that the enemy lost some 300 to 400 men and 25 guns, besides all their ammunition and stores.

The victory of Gwalior brought Sir Hugh Rose's campaign to a close, and though, owing to want of troops to garrison places passed through, disturbances continued in the Saugor and Narbudda districts, and in Jhansi and Bundelkhund, till well into the following year, the back of the revolt had been broken, large districts had been restored to Government, and peace and order reigned where before was tyranny and rebellion.

INDIAN ARMY CASTES.

BRAHMANS.

BY CAPTAIN C. WATSON SMYTH, 1ST BRAHMANS.

The real origin of the Brahmans is wrapped in mystery, and one can only hazard conjectures on the subject, or put belief in myths. The story most generally accepted is that they were born from Brahma's head, which accounts for their name, while all other castes issued from his trunk, legs, and feet, or in the words of the "Purusha sukta," one of the most recent hymns of the Rig-veda :

"The Brahman was his mouth, the kingly soldier"

"Was made his arms, the husbandman his thighs,"

"The servile Sudra issued from his feet."

One would suppose that as all castes were born from the same father, they would be privileged to bear the same name, but as the Brahman was the first-born and issued from the noblest part of the common parent, his descendants claimed special privileges from which all others were rigorously excluded. They originally, without doubt, formed one tribe, but the circumstances which led to their present organization, of which details will be given later, are obscure.

The great difference between the Brahman and all other castes is that he only becomes a Brahman after the ceremony of the triple cord or *janeo*. Until this essential ceremony has been performed he ranks only as a Sudra. By mere birth he is no different from the rest of his race, and it is for this reason that he is called "Dvija" or twice-born.

His first birth only gives him his manhood, whereas his second raises him to the exalted rank of Brahman. Two out of the famous seven Penitents, who are supposed to be the founders of the various sects of Brahmans of the present day, did not originally belong to this caste at all, but by reason of the length and austerity of their state of penance were rewarded by having their status raised from that of Kshatriya to that of Brahman by the investiture of the triple cord. These seven Penitents are the most celebrated personages in the Hindu mythology. The story runs that they were saved from the deluge by the special protection of Vishnu, who embarked them on a boat which he himself piloted, and that after setting a virtuous example on earth, they were finally translated to heaven where they can be recognised in the seven stars which form the Great Bear.

Ancient Hindu works teach us that the Brahmans of those days differed essentially in matters of principle and conduct from their brethren of to-day. The original Brahman is described as a penitent living apart from the world, and entirely engrossed in the pursuit of knowledge; leading a life of introspection, and practising a life of

purity. At this period of his history the Brahman was not so exclusive that other castes could not be initiated by the investiture of the triple cord.

The primitive creed of the ancient Brahmans seems to have been utterly corrupted by their successors. Apparently the first Brahmans practised the purer cult of worshipping one God, but their descendants are idolaters, adoring images which were intended only as the emblems of the object of their worship.

The most remarkable feature in the mechanism of Hindu society is the high position occupied in it by the Brahmans. All castes readily submit to their pretensions as a matter of course. Sepoys are addressed as "Maharaj" by all Hindus, and it is curious to see how much more a low caste man will do for a Brahman than for any European. It must not be supposed, however, that originally the Brahman supremacy was accepted without protest. Their claims to recognition, as a distinct Levitic class of divine origin and possessed of supernatural powers, were rejected by the Kshatriyas, who insisted with perfect truth that many of the Rishis who composed the Vedas were warriors rather than priests, and that no authority for the pretensions of the Brahmans could be found in the Vedic legends. There are traditions of a great struggle having taken place between the Brahmans and the Kshatriyas in which the former were victorious. The details of this quarrel are, however, obscure, for the Brahmans, as custodians of the sacred writings, took care to efface all reference to a struggle which from its very existence cast a doubt on their pretensions to a divinely appointed origin.

I cannot leave this period of the history of the Brahmans without mentioning the great epic of the heroic period of Hinduism, the Ramayana. This deals with the exploits of Rama, prince of Ajudhya, in rescuing his wife, Sita, who had been carried off and shut up in Ceylon by Ravana, the king of the Demons. This epic the sepoys of the 1st Brahmans celebrate with much noise and letting off of fireworks each year, and have a most realistic pitched battle between the two armies, prince Rama being represented by a statue standing some twenty feet high, while the followers of Ravana are demons wearing fearsome masks.

Turning to the tribal organization of the present day, we find that there are two divisions and ten tribes. These tribes are again split up into innumerable smaller divisions.

The names of the tribes are as follows :—

1. Gaur or Northern division, viz., tribes north of the Nerbudda.	1. Kanoujiya. 2. Saraswat. 3. Gaur proper. 4. Maithila. 5. Utkala of Orissa.
2 Dravira or Southern division, viz., tribes south of the Nerbudda	1. Tailanga of the Telegu country. 2. Maharashtra of the Maharatva country. 3. Dravira proper of the Tamil. 4. Karnata of the Carnatic. 5. Gujara of the Gujarat.

The most important distinction between these two divisions is that the Gaur are of greater antiquity than the Dravira. The latter are chiefly descended from Aryan Brahmans, who migrated from Behar into Southern India at the time of the Buddhist ascendancy, and, intermarrying with the Dravidian races, raised their offspring to the rank of Brahmins.

The Dravira furnish no recruits for the army, and of the five Gaur tribes the Kanoujiya, with its subdivision Sarwariya, are the most important from a recruiting point of view; the recruits from the other four tribes being practically *nil*.

The Kanoujiya Brahmans take their name from the famous city of Kanouj, of which only a few ruins now remain in the Farrukhabad district. Some of the Kanoujiya are also known as the Khatul, or those of the six clans, *viz.*, Kasyapa, Sandiliya, Sankrita, Upamanya, Katiyana, and Bharudwaja. Members of these six clans are known as Kulin or true Kanoujiya.

These Khatul Kanoujiyas have some peculiar marriage customs; for instance, the children of the first wife can marry with the children of the second wife, provided their *gotra* or clan is different and they do not come within the prohibited degrees. Again, what is known as *adlu bulla* prevails, that is, two brothers who have married sisters can exchange them. When a bride has been given to a family, the two families will not intermarry till the expiry of five generations. When a man of the Khatul marries for the first time, he takes his wife from the Khatul. He cannot, however, receive a second wife from them, but has to go to one of the *gotras* not in the first six, which are known as Panchadari.

Among the Khatuls there is a section known as the *Bala ke Sikla*, who drink spirits and worship the goddess Chinnamastaka, the headless form of Durga. They are considered quite respectable among the Khatuls, and their position is not lowered by their indulgence in wine.

Bala, after whom they are named, was a devout worshipper of the goddess, and never saluted anyone with a bow. Once a number of Kanoujiya Brahmans, angry with him for his indifference, made a plot to spit on him when he went to bathe in the Ganges; and as he came out of his litter on the bank of the river they all carried out their plan. He sat down, and laughing said, "To be spat on by so many eminent Brahmans is as good as a bath in the Gangajee. The reason that I bow to none, however, is that my power is without limit, of which I will give you proof." So he bowed to a stone close by, and it was broken to fragments. The above is a typical Brahman fable, and is one of many that any Brahman can tell if he is started on this subject: and a very favourite pastime it is with a great number of them. Considering that nearly all these fables are handed down by word of mouth from father to son, it is wonderful how they manage to retain any semblance to the original.

Sarwariya Brahmans take their name from living beyond the river Sarju. They say themselves that they settled on the east of

the river Sarju in the time of Rajah Aja, grandfather of the celebrated prince Rama. Mr. Risley in his "Tribes and Castes" (Vol. I, p. 157) gives from Behar a legend of their origin, which, as he says, throws light upon the part which misunderstood tradition may play in the growth of popular legends. There were two brothers, Kanha and Kubja: they lived in Kanouj, and their descendants were called Kanoujiya Brahmans. Now Ramchandra, king of Ajudiya, wished to perform the great sacrifice of a horse, and sent for the Kanoujiya Brahmans to help him. When they were starting, their father made them promise not to take any presents for what they were going to do. But it seems the sacrifice was of no avail unless the Brahmans were duly rewarded; the Rajah knew this, and caused diamonds to be hidden in the packets of betel which he gave them. When they arrived home their father asked if they had taken any presents, and they replied in the negative; but when the packets of betel were opened the diamonds were found, and the three Brahmans were at once turned out of their caste. They went back to the king, ready to curse him for his treachery, but he appeased them with smooth words and grants of land. The grants were made in this way; the king shot an arrow as far as he could, and the place where it fell was the boundary of the land. Now the name of an arrow is "sar," so these Brahmans were called Sarwariya.

These Sarwariya Brahmans have the usual Brahmanic organization of *gotras*, of which there are 101, but only three rank as Kulin *gotras*, viz., Garga with the title of Sukul, Gantamya with the title of Misr, and Sandiliya with the title of Tewari. They pay much regard to their rank, but this means nowadays hardly anything more than a certain prejudice in the matter of eating and drinking. For instance, in the Brahman regiments the only practical difference between a Kanoujiya and a Sarwariya is that the former's emergency ration is *ludu*, while that of the latter is *puri*. Now both these are made with the same materials—atta, ghi, and water, but the *ludu* is made up in the form of balls and the *puri* is simply *chuppati* with ghi. Thus the difference is a very trifling one, but nothing would induce a Kanoujiya to carry a *puri* or the Sarwariya a *ludu*.

As I have mentioned above, only the Kanoujiya and Sarwariya tribes are enlisted. The remainder are disinclined for military service and do not make good soldiers. Both regiments of Brahmans only enlist men of these two tribes from the United Provinces.

The principal religious ceremonies are called *karams*. Of these there are only four worth mentioning, viz., birth, investiture of the *janeo*, marriage, and death.

It is sometimes thought that only Brahmans wear the *janeo*, but as a matter of fact this sacred thread is worn by three of the highest castes of Hindus, and distinguishes them from the once-born Sudras. The length of the thread enables one to recognise the caste of the wearer: the length of the Brahman's *janeo* is 96 *chuas*, a *chua* being the circumference of four fingers of the right hand. The *janeo* consists

of three threads worn usually over the left shoulder and under the right arm, and once invested with this sign the Brahman never parts with it, though the actual thread is renewed once a month; a married Brahman wears two *janeos*, or rather one *janeo* of six threads. It is interesting to note in this connection that a Brahman boy who dies before he is invested with the *janeo* is buried and not burnt.

The period of mourning for a death is ten days, during which time members of the deceased's family are not allowed to shave, wear shoes, or eat cooked food, but, except the first, none of these customs are observed in a regiment. At the end of ten days all near relatives have their heads shaved, and very hard it is to recognise a sepoy after this; the man who to-day has a long beard and moustaches to-morrow appears as bald as a billiard ball; hair, beard, and moustaches all having disappeared.

The Ganges and the Nerbudda are the two sacred rivers for practical purposes, and the latter, contrary to general opinion, is the more sacred of the two, the dead being allowed to be burnt on both its banks, while only the north bank of the Ganges is used.

Now as regards the suitability of the Brahman for the army. There can be but one opinion amongst those who have served with them, and that is summed up in the word "excellent." His caste prejudices sound formal when put down in cold print, but in reality they are very elastic. For instance, the rule is that before a Brahman can eat he must bathe and change his clothes, and then cook and eat his food, wearing only his *dhoti* or loin cloth: but in practice he has no objection, when it is cold, to cooking and eating with clothes on (provided they are made of wool; and this last necessity is provided for by giving each recruit a woollen garment, half jersey, half coat); and on service he will give up the purifying bath. Again, the strict rule is that no Brahman must eat meat; but before enlisting, a sepoy is made to promise to eat it, and once a month throughout his service he eats meat in the presence of a native officer. The Brahman regiments are now trying to get the men into a system of messing, and considering that this was only started some two years ago, a fair measure of success has resulted. It must be mentioned that a Brahman will only eat with those related to him either by blood or marriage, but he has so intermarried that in every hundred men at least one-third are some relation to another third. These men who can eat together are known as *rotias*. In the 1st Brahmans the system is that no recruits are taken who cannot prove that they have at least ten *rotias* in the regiment, and thus little by little groups are growing, varying in numbers from a section to a squad, who can eat together, and who can eat the food cooked by any member of the group. And so on service, when necessary, one man can be detached to cook for all his *rotias*.

One occasionally comes across recruits who cannot understand this system, and a short time ago an amusing instance occurred. A sepoy brought up two recruits for enlistment. They were paraded in front of the C. O. and asked the usual questions re *rotias*. The

sepoy was standing with a recruit on either side of him. Recruit No. 1 was asked if he would eat with the sepoy "Yes, Sahib," was the answer. No. 2 recruit also agreed. Then No. 1 recruit was asked if he would eat with No. 2 recruit. "No, Sahib," came the answer at once; No. 2 recruit also refused. Threats and persuasions were alike unavailing; the only answer to all our questions being "I do not know him;" so they were sent back to their homes sadder if not wiser men.

The 1st Brahmans have started Brahman buglers, and by giving each boy his own mouthpiece, it is found to answer very well. The greatest difficulty is the complete lack of musical ear. This seems to be the natural characteristic of all natives when they commence to learn European instruments, and it is not until the second generation that they become really good.

The Brahman sepoy's character is most conservative. He is a frugal liver, and his bannia's accounts have to be carefully watched to see that he is not filling his pocket at the expense of his stomach. His principal food is chuppati cooked in ghi and washed down with milk. He is also very fond of vegetable curry, when vegetables are sufficiently cheap, but onions and beetroot are never eaten. He is most particular about his ghi, and the quarter-master has to keep a close eye on the bannias to see that the quality is maintained. Like other high-caste Hindus, he cooks his food in a *chauka* about five feet square with a *chula* or fireplace inside it, the whole being leaped or spread with cowdung. As a rule the principal meal is eaten at midday, but most sepoys save something from this meal to eat at night. The writer personally has never seen a Brahman throw away his food because the shadow of a man of another caste had fallen on it, and he has often walked between the *chaukas* when the men have been cooking in camp, of course taking care never to touch one.

In Brahman regiments the emergency ration is cooked not by the men themselves but by the *lungris*, or company cooks. They are of course Brahmans, but are not necessarily relations of the whole company, and to ensure the men eating these rations they are consumed once a month in the presence of a British officer, who generally takes a small piece himself, much to the enjoyment of the sepoy, who watches closely to see how much his Sahib can eat.

The Brahman's mind works slowly, but once he has thoroughly mastered a subject he seldom if ever forgets it. He has a fine physique, averaging well over 5 ft. 8 inches, with a chest from 38 to 40 inches. He is capable of bearing any amount of fatigue, and his endurance is extraordinary; at games he is quite good, as is evidenced by the excellent hockey teams of both the 1st and 3rd Brahmans. His national pastime is wrestling, of which he is very fond, and this is encouraged by annual competitions, starting with sections and working up through companies to the whole battalion; thus every man enters, and, as the men who succeed one year are not allowed to win the second, there is no fear of discouragement by the same men always taking the prizes. In conclusion let me say that the Brah-

mans have served in our ranks from Plassey to the present day. They have taken part in almost every campaign undertaken by the Indian armies. Under Forde they defeated the French at Condore, under Cornwallis they assisted at the capture of Seringapatam, under Lake they took part in the Mahratta wars, including the siege of Bhurtpore, which both regiments of Brahmans bear as a battle honour. Brahman sepoys shared in the victories and disasters of the 1st Afghan War, and even the Mutiny furnishes many examples of their personal devotion and fidelity. Of later years they served in Burma, and last of all in Tibet, where they earned the highest praise of all with whom they came in contact; and their caste prejudices were dropped entirely. With such a record in the past, it may be confidently expected that, when their chance comes, they will do more than justify the excellent opinion their officers now hold of them.

The following books have been consulted:—

“Hindu Castes and Sects,” by J. N. Bhattacharjee.

“Brahmans,” by Captains Bingley and Nicholls.

“The Tribes and Castes of the North-Western Provinces and Oudh,” by W. Crooke, B.A.

“Hinduism,” by Professor M. Williams.

“Hindu Manners and Customs,” by Abbé Dubois.

“Tribes and Castes,” by H. Risley.

CORRESPONDENCE.

MORE REMARKS ON "YOUTH."

SIR,—“Elisha,” who from his remarks on “Youth” is evidently “also one of the prophets,” says he has faith in the patriotism of the British officer, and in his readiness to sink his personal feeling for the good of the empire, and adds he is a firm believer in the German menace. So am I, and I possibly know more about the reality of it, from actual experience, than the great majority of British officers who believe in it, and for this reason, I wish to point out a way, which already exists, and which, if utilised properly, would to a certain extent accelerate promotion.

I am a senior officer now, and one of those who has reaped no benefit from the recent increase of staff pay and pay of rank, though I went through all the lean years which rendered that increase necessary, and suffer still from their effect. I have also suffered from senior officers having been brought into the regiment while I was a junior, so that now I shall be fired for age before I complete the period of command, if I live to get it. No one, therefore, can accuse me of grinding my own axe in what I bring forward, for one day I might be caught by it myself, though at present I do not feel as if I should be.

The point I would urge is this (though the instance quoted only applies to infantry).

In hill-warfare it is quite right and proper that an officer commanding a double company should go up a hill with one of the picquets his D. C. provides. It is laid down how a retirement off a hill should be made in the face of an enemy,—and, in getting away, the most active men should be the last to retire. Is it reasonable to expect them to stay till the last moment, if they see the double company commander go off with the first? And if he stays till the last, and can't move as quickly as they do, what is to become of him? Either he will be a casualty, or possibly, if his men stay with him, the cause of more casualties, with the result of the party being hung up; both events undesirable.

Every year the medical officer of a regiment has to certify, in the confidential report, as to all officers' fitness for service.

How often does he examine them to see that they really are so? In all my service I have never known them examined. But it *should* be done, and if they are not fit, it should be so stated, and whether the disability is permanent, or likely to become so, or is merely temporary.

I know and have known many officers, who are and were not physically fit for active service, who have been allowed to stay on; and both in peace-time and on service they block promotion and

throw an increased amount of work, risk, and responsibility on others, who seldom get any *kudos* for it.

How many of us have known of officers, who have been kept out of sight on occasion (although the medical officer has presumably reported on them as "Fit"), so as to avoid awkward enquiries?

There certainly has been less of this since the yearly scale of pension has been introduced. Still, to prevent anything of the sort, and also to give the man who is fit and does his full share of work a chance, any officer who suffers from anything which would be likely to render him permanently unfit for active service might be given a year's furlough, and at the end of it, if not fit then, might be pensioned on the year's scale next above that to which he was entitled at the end of his furlough. Or, if the unfitness were such as not to incapacitate him from garrison duty, he might be posted to one of those battalions of which "the fighting material is not of equal value to the rest of the Army." These battalions at the same time might contain a certain proportion of N.-C. O's. and men, suffering from partial disability, but who were of unblemished character or had performed specially good service. They might be called "Veteran Battalions" so as not to lose prestige or *esprit de corps* through not being in the first fighting line.

BALD HEAD.

PRECIS OF FOREIGN MILITARY PAPERS.

Militär-Wochenblatt.

General Coupilland on the German Army Manœuvres.

General Coupilland, formerly commanding the 33rd French infantry division, and recently President of the Technical Committee on Infantry, attended the German imperial manœuvres, 1910, as official correspondent of the "*Temps*."

He has the following remarks to make :—

Generally, the plan and execution of the manœuvres was clear and simple. The German higher commands are good, and the N. C. O's are excellent. All arms are ruled by a strong sense of discipline and duty.

A very striking point was the successful umpiring ; decisions were correct, and contributed to make the conditions of the manœuvres as nearly similar to those of active service as possible.

The infantry made a very good impression. The men were well grown, strong, and hardy, without being clumsy. Clean, despite the bad weather. Marching powers first-rate : some regiments covered 80 kilometres (50 miles) in the day. March discipline was good ; there were no stragglers. All close order movements were parade perfect. Fighting formations were correct, and fire discipline good ; but sufficient use was not made of cover ; not only skirmishers, but also reserves, exposed themselves unnecessarily to fire. Nowhere were forces on the battlefield concealed. Entrenchments were much resorted to, but without sufficient consideration of the lie of the land. The infantry did not co-operate sufficiently with the other arms. First line transport were well led. The four-wheeled field-kitchens were admirable.

Cavalry was well mounted ; horsemanship and horsemastership were good. The spirit of offensive was conspicuous both mounted and dismounted. The latter form of combat was much used. The cavalry showed that they knew how and when to use the carbine. On the other hand, the reconnaissance, especially on the Blue side, was defective, and pointed to insufficient instruction.

The artillery deserve great praise. They are well horsed, and correct in manœuvre, and supported the infantry well. But they are inferior to the French artillery in the use of ground, and were almost always conspicuous when coming into occupation of a position.

Dirigibles were employed, and displayed their mobility and capabilities, but the information received from them was frequently incorrect. Trained observers are a necessity here.

In conclusion, General Coupilland remarks that though the manœuvres can only give an approximate idea of the service possibilities of the German army, yet its powers are undeniable. The

tactics employed combine outflanking movements with determined attack. Throughout all ranks is seen a regard for traditional principles, a high spirit, and sense of duty.

Length of service in the commissioned ranks of the German Army.

All officers who are despondent at the tardiness of their promotion, should derive some satisfaction from a perusal of the "Dienstalters-Liste der Offiziere der Königlich-Preussischen Armee," which shows that promotion in the German Army is slower than in any branch of the British service.

The current number of the above publication is noticed in the *Militär Wochenschrift* of the 22nd October 1910, and the following is a précis of its information:—Exclusive of officers of royal blood, there are only three field-marshals on the active list. Their commissions date 1860, '61, and '62, and they reached their present dignity in 1908, after an average of nearly 50 years' service.

Forty years stand to the credit of army commanders.

The lieutenant-generals have from 35 to 40 years' service, the former period due to exceptionally fast promotion for war or staff service. There are lieutenant-generals of 1906 still waiting for divisional commands, the period of which may be taken at from four to five years. Major-generals of from 33 to 37 years' service are also waiting for divisional commands. Among these, infantry generals are going over the heads of their cavalry confrères at the top of the list. The youngest major-generals and brigade commanders, promoted to that rank in 1910, have 35 years' service.

In the infantry there are officers still waiting for regimental command after 35 years, and the latest promoted infantry colonels have from 33 to 34 years' service. The oldest cavalry colonels have 31 to 34 years to their credit, while the last promoted have 30 to 31 years. In the other arms service varies from 30 to 35 years for the rank of colonel.

There are a few cavalry majors commanding regiments, while in the infantry, many majors of 26 years' service will still have to wait some years before reaching the position of battalion commander. This arm is at a disadvantage in this respect, as compared with the others.

The oldest infantry captains waiting for their majority have 26 years' service. The senior infantry lieutenants' commissions date from 1894. Some of those of this date have obtained their companies, but, as a rule, it takes 16 to 17 years to reach the rank of captain. This is the same in the other arms. Nine years as sub-lieutenant brings promotion to lieutenant.

In the above notes, service is reckoned from the date of commission, before which two years' probationary service has to be completed. The average age of the commencement of the latter is 19 years.

Air-Vessels in War.

The use of, and the conditions of defence against, air-vessels are discussed in Nos. 154 and 162, *Militair Wochenublatt*, 1910. In both cases the principle of active defence by an aerial fleet is accepted rather than that of passive resistance by terrestrial artillery. The latter can no more deal effectively with hostile air-vessels than coast defence armament can dispose of the enemy's fleet at sea.

The article in the first-mentioned number is based on a notice of an essay on this subject in a recent number of the *Tag*. The author of the latter points out that air-ships could with difficulty be armed with artillery, and that aeroplanes could carry nothing heavier than machine guns, while the use of torpedoes seems debarred by the pace of the firing vessel and the difficulty of the target. Moreover, he contends that it is bad tactics for air-vessels to engage in combat at all, seeing that reconnaissance is their all-important rôle, and that they cannot be replaced if put out of action. This latter consideration, he says, puts their tactics on a different footing to those of reconnoitring cavalry. He concludes that fire from *terra firma* affords the only means of defence against aerial observers, and can only suggest the construction of special guns for this purpose, and their mounting on automobiles. These guns are to be posted round the army to be protected, at intervals of about $2\frac{1}{2}$ miles.

In opposition to the above views, it is suggested that hitherto experiments with anti-air-vessel artillery have indicated that one must accept with caution the suggestion that air-vessels can be combated solely by special terrestrial guns, for which useful employment will probably only be found against air-ships, and not against heavier than air machines. The preference given by the French to the latter for military purposes is therefore commended.

In any case, the question of the use of artillery to protect an army against observation by air-vessels is one affording many problems. Considerations of the safety of the army protected will limit the fire of such artillery to one direction, *viz.*, outwards. The number of guns would need to be enormous. The area occupied by four corps, each at an interval of $2\frac{1}{2}$ miles, and surrounded by protecting guns at $2\frac{1}{2}$ miles distance from the army on all four sides, would be a rectangle of about 13 by 19 miles. For such an area at least 20 automobile guns would be necessary; for six such armies 120 guns. This means an expenditure of £600,000 at £5,000 a gun taking the very lowest computation as to the number required. In practice many more would be necessary, and the extent of such a project renders it almost an impossibility. Moreover, and this is a most important consideration, the roads for the employment of all this special artillery would not be available.

During an action are these guns to stand idle, or how is their employment to be regulated?

The argument adduced by the writer in the *Tag* against the principle of aerial combat can indicate a diametrically opposite conclusion. If the enemy can only with difficulty replace his disabled

air-vessels, every possible means must be used to destroy them as early as possible in a campaign, and with them, the source of intelligence for the hostile leaders. It is far too early in the development of aerial carriage to decide that air-vessels cannot carry artillery, and even use torpedoes. It may be technically possible, and tactically it is desirable.

The view is accepted that air-vessels cannot replace cavalry. They will be able, under favourable conditions, to carry out more extended reconnaissances, but they are at the mercy of the elements, and cavalry patrols will continue their work when air-vessels are helpless. Some of the disadvantages of the latter are pointed out. They cannot hope to remain unobserved, the noise of their motors proclaims their approach, their great pace renders accurate observation difficult, while in the case of accident bringing them, even intact, to *terra firma*, their situation is like that of a tortoise on its back. They undoubtedly have their use, and may be of the greatest service, but their exploitation at the expense of cavalry would be a serious mistake.

The requirements of an army for defence against hostile air-vessels are summed up as follows:—

1. A large number of efficient air-vessels to protect the home aerial fleet, and primarily to attack hostile air-vessels, wherever they are to be found.
2. One or more guns capable of high angle fire with the artillery divisions or regiments.
3. Guns mounted on automobiles to accompany cavalry divisions and advanced guards, and more of the same sort to protect the army headquarters, bivouac sites, and columns on the march.
4. Infantry trained to oppose air-vessels by rifle fire: for infantry alone will normally be in a position to combat such vessels from *terra firma*.
5. High angle fire machine guns with machine gun detachments, to take the place of infantry when the latter are not available.

Novye Vremya.

Reorganisation of the Turkish Army.

Up to the present time each of the existing seven army corps of the Turkish army has furnished in time of war (with the exception of the 7th corps) from two to five divisions of the *Nizam* (field troops), and four divisions each of *Redifs* of the first class (reserve troops): besides this, in Roumelia there used to be about another ten divisions of *Redifs* of the second class. In other words on the mobilization of the Turkish army the preponderating class of troops were *Redifs*, i.e., troops that in time of peace were maintained in cadres, with very weak establishments of officers and non-commissioned officers.

The main feature of the new organization (in accordance with which the number of corps is increased up to 14, each to consist of from two to three divisions of the *Nizam*), is that on changing to a war footing the divisions of the *Nizam* will form the principal part of the army.

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Simultaneously with the above-mentioned reforms, the Turks are energetically working at the question of a new organization for the Kurd cavalry. These light regiments will henceforward have a regular cadre of officers and non-commissioned officers: all the duties of the officers, which formerly used to be carried out by the heads of clans, will be performed exclusively by officers of the regular cavalry. Regiments will be called up for periodical training; and clothing, saddlery, and armament will be supplied by the Ministry for War. This new cavalry will consist of not less than 100 squadrons.

* * * * *

On the completion of the reorganization, which will be in three or four years, the Turkish army will consist of 14 army corps (Constantinople, Adrianople, Karakiliss, Rodosto, Salonika, Monastyr, Uskyub, Erdzijan, Erzeroum, Van, Mossul, Bagdad, Damascus, and Sakaia), and four independent divisions, from Yanin to Kazan on the Greek frontier, Scutari, on the Montenegrin frontier, Tripoli, and Idjas. Its war strength will amount to 1½ million bayonets and sabres.

Although Turkey, even at the present time, can put about a million men into the field, the greater part of these are only partly trained, if trained at all, and are therefore not very formidable, but in five or six years, when several contingents of conscripts, well trained according to modern ideas, have passed through the ranks, things will be quite different, and Turkey will be in possession of an army which will be a serious threat to the peace of Europe.

REVIEWS.

Military Law Made Easy, by Lieut.-Col. S. T. Banning, (5th edition : Gale and Polden, Ltd.

This work is not intended to supersede the official books, but to aid the student in their perusal. The author may fairly claim to have succeeded in his object. The obscurities of legal phraseology are cleared up, all considerations appertaining to each subject are collected together, and references given for every statement. By verifying the latter, the reader will soon learn where to find his authorities, whether for the purposes of examination or of his daily work. A useful feature is the illustration of difficult points by well chosen examples; e.g., periods of absence and confinement, and the nice distinction between theft and embezzlement. The chapter on Evidence is good, while the difficult subject of Aid to the Civil Power is carefully gone into, and changes due to the Territorial and Reserve Forces Act of 1907, and the liabilities of these forces, are clearly shown. The chapters conclude with questions which will afford the self-taught student the means of testing his progress.

The present edition embodies the changes brought in by the Army Annual Act of 1910. It is divided into two parts—the first dealing with the syllabus of examination for lieutenants, the second with the additional matter for captains. A collection of examination papers is added, ending with those set in May 1910 for lieutenants and in December 1909 for captains. All the questions are fully answered, and authorities for the answers given.

A Study in Troop Leading and Management of the Sanitary Service in War, by Major John F. Morrison, General Staff, United States Army, and Major Edward L. Munson, Medical Corps, United States Army. Published by authority of the War Department, United States Army.

This book illustrates vividly, in an assumed battle, the leading of troops and the management of their medical services.

The word "Sanitary" throughout is used not at all as understood in the British Army but in a broader sense comprising all matters connected with the medical services.

It is used as we use the word "Medical." Thus what is here referred to as a "Sanitary unit" is in the British Army called a "Medical unit."

It gives a clear and realistic account of how the medical services should be co-ordinated with combatant troops in battle; and combatant and medical officers alike will find its perusal equally instructive, for it illustrates not only the work of the medical service in detail, but the paramount value of co-ordination between combatant and medical officers, essential to military success in the field.

From it the combatant officer will learn the true functions of the medical services in battle, and the medical officer the necessity of a knowledge of general military organization and of the elementary principles of tactics, woodcraft, and map-reading. It corrects the idea, evidently somewhat prevalent in the United States Army, that the chief function of even an administrative medical officer in battle is personally to attend to the wounded. It teaches the medical officer with a regiment not to over-estimate the gravity of the losses in his own small sphere, but to understand what the general condition of affairs may necessitate, his few wounded being temporarily neglected while heavy casualties elsewhere call urgently for aid. Clear pictures are drawn of the indignant regimental surgeon when help is not immediately afforded to him, and of the indignant commander when part of his medical personnel is withdrawn for urgent work in another part of the field.

The difficulty of removing wounded from cavalry is touched on but not solved. A small two-wheeled one-man vehicle of the galloping ambulance type is said to be the only means of evacuating serious cases from this arm.

Unpleasant themes are not shirked, and frequent reference is made to the safeguards necessary to prevent malingerers sneaking from the zone of danger, while it is strongly insisted that the greatest good to the greatest number must be the guide of the chief administrative medical officer, who must be in close touch throughout the action with the commander and his chief of staff, and, from the information obtained from these officers, must so distribute resources that the rapid evacuation and temporary treatment of wounded can be obtained while slight cases and malingerers are returned to the firing line.

The brutality of warfare is shown to exact that more good to the results of the fight can be done by the surgeon stopping bleeding and preventing wound infection, by dressing a large number of cases, instead of wasting his time with the helpless cases sometimes obviously moribund. It is also shown that every wounded man who can possibly walk must be forced to do so unless transport is unlimited.

It is emphasised that medical manœuvres in time of peace are essential, so as to train each officer and subordinate in his rôle in war, so that in action he knows exactly what to do, and the administrative medical officer is not beset by unnecessary conundrums from ignorant subordinates.

Stress is laid on the advantages of the divisional distribution of medical units now adopted in our Army. This brings the medical arrangements directly under the control of the commander, who through the head administrative medical officer is able to allot his medical units where most required. Thus on the eve of battle the ambulances of corps are called in, and become, with the ambulance companies and field hospitals, part of the divisional troops.

The general medical organization differs only very slightly from our own, and it is so clearly and vividly described in this fictitious battle, and the American method of close co-ordination between the different branches of the service so rightly insisted on, that this excellent book should be in every military library in India and studied by all officers, no matter to what corps they belong.

Cavalry Tactics, as Illustrated by the War of the Rebellion,, by Captain Alonzo Gray, 14th U. S. Cavalry, 187 pp. U. S. Cavalry Association, Fort Learenworth, Kansas, 1910.

Captain Gray was not satisfied with merely reading the principles of cavalry tactics as laid down in the manuals that came before him, but proceeded to enquire for himself how these principles were justified by the records of practical experience in the War of the Rebellion, 1862—1865. The conclusion he arrives at, as shown in this excellent little book, is that there is no modern principle of cavalry tactics accepted to-day as correct by any first class military power, which is not fully illustrated during the War of the Rebellion.

The manner in which the cavalry leaders on both sides carried out the tasks given them in the larger field of strategy, and the skill with which, in their tactics, they combined shock with fire action is even now scarcely realised. In tactics, as the author says, formations depended altogether on the conditions, but there seems to have been a predilection for regimental units to attack in column, especially "close column", which is exactly similar to our column of half squadrons. The remarks on the relative merits of revolver and sabre, and shock action and the use of the sabre, are interesting. The author is quite clear that the revolver only has an advantage when a mêlée dissolves into individual combats, otherwise the sabre is essentially the weapon for shock action, and for the thick of the mêlée; he quotes General Wheeler's opinion that the moral influence of a sabre-armed cavalry is great. Those who like to maintain that the cavalry in this war seldom had recourse to shock action will be disappointed to find many illustrations of it in this book. There are some instructive examples of the inadvisability of advancing over long distances at a fast pace before delivering a charge. Captain Gray has no opinion of fire action by men while mounted, though he says it was often used. We regret he has not given some more illustrations of the combination of shock with fire action, of which Sheridan's battle at Booneville is such a brilliant example. A point which strikes one very forcibly in the work done by the cavalry during the war was the ingenuity and skill shown in crossing considerable rivers. Not the least interesting chapter is that on "Transportation and Supplies." The mobility of cavalry depends so much on its ability to utilise the resources of the country.

We can safely recommend this little book, not only to students of the war itself, but to those who wish, like the author, to enquire how the principles laid down in our manual are justified by the records of practical experience.

Lord Clive's Right Hand Man: a Memoir of Colonel Francis Forde; by Colonel Lionel Forde. London: James Nisbet & Co., 228 pp., 5s.

Any tales of the early struggles of John Company are good reading, and to bring to light history from the desks of the dead is to acquire merit. In "*Lord Clive's Right Hand Man*" Colonel Forde (late R. A.) gives us the history of his ancestor Colonel Francis Forde, who with several other King's officers, transferred, when fairly senior, to the Company's service, and came to much fame thereby.

In 1754, the 1st Royal Corps, H. M.'s 39th Foot, which to this day bears the motto, *Primus in Indis*, landed in India, and with it came Captain Francis Forde. Forde soon found himself with local rank of lieutenant-colonel in command of an expedition to reduce Nellore, his force including 56 Caffres (natives of Madagascar). His assault failed and he was obliged to retire, but without discredit, and rejoining his regiment he took part in the war with the French. In 1858 Forde was appointed, on the recommendation of Clive, and by invitation of the Select Committee, to the command of the troops in Bengal.

Shortly after taking up this appointment Forde was sent in command of an expedition from Bengal into the "Ceded Provinces" as the Northern Circars were called. Here, at Condore, the French under the Marquis de Conflans were met, and defeated signally by Colonel Forde. The British sepoyes wore scarlet for the first time, and were taken for Europeans. The French force, which included a European battalion, lost all their artillery and much of their transport and baggage. "Condore" is now an honour on the colours of the Royal Munster Fusiliers.

Colonel Forde now set himself to urge the complete destruction of the French, in the face of considerable superiority on their side. In the midst of various untoward events, and on the verge of being forced to a disastrous retreat, he stormed the fort of Masulipatam; the Marquis de Conflans, with 500 Europeans and 2,500 sepoyes with 120 guns were captured, to their intense surprise, and the whole aspect of the campaign changed. It was through this port that the French drew the sinews of war, and they never recovered from its loss.

As a reward for this victory Colonel Forde received the intimation that the Court of Directors had refused to confirm his appointment, and that he was to be superseded by Colonel Eyre Cooke of H. M.'s 84th.

As Forde had resigned his King's commission to take up the Company's commission, this was a severe blow. He returned to Calcutta at a time when war had broken out with the Dutch, and a Dutch force had invaded Bengal, and was at once requested to take command of the available troops. After some skirmishing he found himself in a position to destroy the whole Dutch force. He sent off to Clive saying that, as the nations were not yet formally at war,

he wanted an Order in Council to attack them. His note came back with the following scribbled on the back by Clive—"Dear Forde, fight them immediately: I will send you an Order in Council to-morrow." Next morning Forde took up a position at Badara, midway between Chinsurah and Chandernagore, where the Dutch, consisting of 700 Europeans and 820 Malays, attacked him. 320 Dutch were killed and 300 wounded, and almost all the others taken prisoners. Forde's force consisted of 370 Europeans and 800 sepoy, and their loss was trivial.

After this signal victory Forde proceeded to withdraw to England, accompanied by warm representations of his great claims and varied services, made by Lord Clive in person, who attributed much of his own success to Forde's operations. Clive's recommendation however met with no immediate success; but in 1769 Colonel Forde, with Messrs. Vansittart and Serafton, was despatched by the Court of Directors as a special commission to overhaul and report on their affairs in India. Sailing on 11th October, the commission reached the Cape on the 6th December, left on the 27th, and were never heard of again.

Thus ended the promising career of Colonel Francis Forde of Condore and Masulipatam.

His biography, as framed by his relatives, is good reading, and contains interesting appendices of letters and despatches of the time.

Signalling Messages, by A Signalling Officer. Second Edition, 3s. Gale and Polden, 2, Amen Corner Paternoster Row, E.C.

This little book, which is handy in size, will be found useful by all signalling instructors, if only because it will save them the labour of composing messages for practice. There are over 150 pages of "plain" messages, and nearly 60 of cipher. The solution of the latter will probably prove interesting to the men, as well as being a test of accuracy. Apart from its utility in providing the key to the deciphering of these messages, the chapter on ciphers should prove of use generally. Lines 3 and 4 on p. xii might perhaps be worded to express their meaning more clearly.

The proper names in the messages in Part 5 are remarkable for their ingenuity, and should defeat guessing.

The hints at the beginning of the book are obviously the result of experience, and are well worth the study of all instructors, whether they are working for inspection purposes or not.

The Official History (Naval and Military) of the Russo-Japanese War, Vol. I.—Prepared by the Historical Section of the Committee of Imperial Defence. Price, with a case of maps, 15s. London: Harrison and Sons, 1910.

At the close of the Russo-Japanese War in 1905, a great deal of literature was published, which purported to give to a certain extent

a history of this war. But these books were for the most part unofficial, and consequently all were coloured to some degree by the ideas of the actual authors, while many of the latter had no access to official reports and documents. Even the statements of eye-witnesses were apt to give too great prominence to those episodes which had come before their immediate notice. In England there were certainly official reports from the various attachés, both naval and military, who had accompanied the forces of one or other of the combatants, but these reports were not available to the public, and were to a certain extent disjointed. It was therefore necessary to edit them before they could be considered a consecutive history of the war.

In 1906, however, the General Staff at the War Office published the first part of their account of the Russo-Japanese War. This book which was mainly compiled from the reports of our attachés, dealt with the course of the military operations up to, and including, the battle of the Ya-lu at the beginning of May 1904. The compilation of this account was then handed over to the Historical Section of the Committee of Imperial Defence. The latter body subsequently published three further volumes, which dealt with the military events between the battle of the Ya-lu and of Liao-yang, with the siege of Port Arthur, and with the battle of Liao-yang respectively. But in the preface of each of these volumes we were told they dealt only with military events, that all comments were, for the time being, withheld, and that they merely formed an advanced portion of the combined naval and military history which was under preparation.

The first volume of this Official Combined History of the war has now been published. It commences with an introductory account of the political events leading up to the outbreak of hostilities, followed by details of the naval and military forces of the rival nations, and a general description of the theatre of operations. It then traces the course of the operations up to the 24th August 1904, the date on which the first general assault of the defences of Port Arthur ended in failure. The campaign is described, so far as is possible, in chronological order, the naval and military events being dealt with, as a rule, in separate chapters.

Taking the military operations first, Chapter VIII deals with the landing of the 1st Japanese army in Korea, and with its concentration on the Ya-lu, while the actual battle of the Ya-lu is described in Chapter XI. Then comes the landing of the Japanese 2nd army in Manchuria, followed by the battle of Nan-shan, and the subsequent advance of that army northwards. The advance of the 4th and 1st armies are next taken in order, up to the point where the three armies are concentrated south of Liao-yang. Finally, an account is given of the operations of the 3rd army in the Kuan-tung Peninsula, by which the Port Arthur garrison was pushed back to the line of the permanent defences, and the book ends with an account of the first general assault. The description of these military operations differs little from that given in the first

three parts of the previous account. But the detailed distribution of the Russian forces at the opening of the campaign is now given accurately, and certain documents to which access has hitherto been impossible have thrown a new light on some of the events. Foremost among these is a letter written by General Kuropatkin to General Stessel on the 23rd April, in which he forecasts the probable Japanese landing in Manchuria, and lays down the general line of conduct to be followed by the Port Arthur garrison. From this letter it would appear that he anticipated a landing both in the Gulf of Liao-tung and in the Bay of Korea. As to whether their operations would then be directed mainly against Liao-yang or against Port Arthur, he evidently had some doubt, but that they would operate against both does not seem to have entered into his calculations. In the event of the Japanese marching in force on Liao-yang, General Stessel was to attempt to divert a part by moving northward from the Kuan-tung Peninsula, whilst, if they were to advance on Port Arthur, General Kuropatkin would move along the railway to its relief. In passing on these instructions to Major-General Fock, who was guarding the land defences of Port Arthur, General Stessel added his own views, which were that the main landing would either take place in the vicinity of the Ya-lu, or south of the Nan-shan position. From this we can understand how great a surprise the landing at Pi-tzu-wo must have been to the Russians.

The account of the operations against Port Arthur, which is given in this volume, does not go into so much detail as that which is contained in Part III of the previous work. The plans of the various Russian fortifications are omitted, and the description of them is less complete, so it appears as if the earlier account was meant to be in itself the complete story of the siege.

The volume concludes with a chapter of comments on the military operations. Turning first to the strategy of the Japanese, it is pointed out that they never once lost sight of the fact that their main objective was the defeat of the Russian field army in Manchuria. They decided that this field army would probably be encountered in the vicinity of Liao-yang, so, in accordance with the tenets of their German training, they deployed their armies from the outset in such a manner that they might envelop the enemy by their converging advance. At the same time, the simultaneous operations against Port Arthur are held to have been necessary. The great danger to the Japanese was that of having their communications interrupted, and in order to prevent this, the early destruction of the Russian fleet at Port Arthur was imperative. To have contained this fleet would not have been sufficient, since the fighting value of the Baltic fleet was an unknown quantity, and the arrival of the latter in eastern waters, while the Port Arthur fleet was still capable of action, might very possibly have resulted in the loss of the command of the sea.

In commenting on the Russian strategy, it is shown that, owing chiefly to political unpreparedness, the Russians were deprived of the

initiative from the very beginning of the war. Having lost command of the sea, at any rate for a time, they had to await the landing of the Japanese. For this purpose a concentration in a central position was correct, and the choice of Liao-yang for that concentration was probably right. When, by the strategical deployment of the Japanese armies in Manchuria, the plan of campaign became more apparent, the Russians had two courses open to them; they might either fall back towards Mukden and Harbin, or might contain one part of the Japanese converging armies while attempting to crush another. The book points out that the former course would probably have been desirable if the Japanese could not be prevented from concentrating superior numbers at Liao-yang, for the Russians would have fallen back on their reinforcements, while lengthening the Japanese line of communications, and would, moreover, have thus avoided their enveloping movement. The latter course was the one actually adopted by General Kuropatkin, and his failure is imputed not to his strategical conception, but to two causes, first the waste of five days from the 24th July, during which his cavalry was trying to obtain definite information about the Japanese 1st army; and, in the second place, to the conduct of the holding operations in front of the 2nd army. Whether he was correct in choosing the 1st army as the one to crush is another question altogether. As regards detachments, the Russians had two—first the garrison at Port Arthur, and second the force at Vladivostock. That the former fulfilled its object there can be little doubt. Not only did it divert a very large force of the Japanese from their main objective at a critical time, but the possession of the harbour enabled the Russians to repair their damaged ships, and to assume the offensive with a reasonable chance of securing a victory which might have changed the whole course of the campaign. The detachment at Vladivostock, under General Linievitch, did not fulfil either condition. By the end of June it was evident that no Japanese force of sufficient size to operate against Vladivostock could be spared for such a purpose; while the squadron in that harbour was so small that its action could not greatly affect the course of the war one way or another.

No advanced portions of the official account of the naval operations have been published, so these are treated in this volume by the Committee of Imperial Defence for the first time. The naval account begins with the first two attacks upon Port Arthur, and with the first attempt to block that harbour, which were undertaken with the main object of securing the safety of the sea communications of the 1st Japanese army during its advance to the Ya-lu. The opening operations in the Sea of Japan are dealt with in the next two chapters, while in the western theatre of operations the second and third attempts to block Port Arthur are described. After the third attempt, Admiral Togo reported that the harbour entrance appears to have been completely blocked to the passage of cruisers and large vessels, which message was the signal for the landing of the 2nd Japanese army near Pi-tzu-wo. Although the

harbour at Port Arthur had not been completely blocked, the Japanese had virtually obtained command of the sea by this time, and this, together with the victory at the Ya-lu, had cleared the way for the main Japanese operations in Manchuria. Consequently the naval story is dropped at this point, while the converging movement of the Japanese on Liao-yang, and the operations of the 3rd army in the Kuan-tung Peninsula are taken up. In order to make the military account clear, it has to run a little ahead of the naval story at this point, but, at the same time, due stress is laid on the effect which the sortie of the Russian squadron from Port Arthur on the 23rd June had on the movement of the Japanese armies. The naval account is resumed with the story of this sortie, followed by the final sortie and battle of the Yellow Sea on the 10th August. The concluding part of the volume deals with operations of the Vladivostock cruisers, ending with their defeat by Admiral Kamimura on the 14th August, and the loss of the 'Rurik.' The accounts of the last two attempts of the Russian fleet to leave Port Arthur are extremely interesting. About the 10th June, in reply to a note by Admiral Vitgeft, a message was received from Admiral Alexeiev urging that the fleet should put to sea and fight a decisive battle as soon as possible. To this Admiral Vitgeft replied that delay was inevitable, owing to the difficulty of the mine-sweeping operations. On the 18th June, however, a definite order was received from the Viceroy that the fleet should put to sea and engage the enemy, choosing the most favourable opportunity. The result of this order was the sortie of the 23rd June, when the re-appearance of the injured Russian battleships took the Japanese completely by surprise. Although the Russian fleet was by that time in superior strength to the Japanese, Admiral Vitgeft declined action, and put back to Port Arthur the same evening. But he was forced to anchor for the night in the roadstead, where he was subjected to a series of attacks by the Japanese torpedo flotillas, though not a single Russian ship was hit. The effect of this sortie was, however, far-reaching. At sea, Admiral Togo was forced to maintain a closer blockade, while orders were sent from Tokio to the commanders of the 1st, 4th, and 2nd Japanese armies in Manchuria, that, owing to this sortie, 'transport of provisions by sea had been rendered uncertain, and the battle of Liao-yang must therefore be postponed until after the rainy season.'

After this attempt to break away, a correspondence regarding the rôle of the fleet was maintained between Admiral Vitgeft and the Viceroy, in which the former declared that the fleet should 'withstand the siege or perish in the defence of Port Arthur.' By this time Admiral Alexeiev had appealed to the Tzar, and on the 7th August he emphasised the Imperial command by writing to Admiral Vitgeft, "I again reiterate my inflexible determination that you are to take the fleet out of Port Arthur." But the orders were now no longer to fight, but to make for Vladivostock, if possible avoiding an action. It was with this intention that the sortie of the 10th

August was made, though the ensuing battle was forced on the Russian by Admiral Togo, after which the remnants of the Russian fleet were driven back into Port Arthur for the last time.

Regarding Admiral Kamimura's operations against the Vladivostock cruisers, it is interesting to note how he refused to be drawn away from his strategic position in the Korean Straits, where he could prevent a junction between the two Russian squadrons, while protecting the sea communications of the Japanese army. But the news of the Russian raids on the Japanese coast and on the merchant shipping was well calculated to tempt him to do so. Even in Japan a temporary outcry was raised on account of these raids, and the result of his determination to remain on his station is a point which should be noted by every Englishman when considering the relative duties of a fleet and of a home defence army. The effect of the raids was negligible, while Admiral Kamimura reaped his reward in his defeat of Admiral Issen at the battle of Ulsan.

The naval comments at the end of this volume deal first with the initial distribution of the Russian fleet. It is pointed out that the fundamental basis of the Russian strategy should have been the fact that the interruption of the Japanese sea communications would render Japan powerless on land. For this purpose, the Russian required a fleet sufficiently strong to gain a decisive naval victory. This fleet was represented by the one based on Port Arthur, though its strength, when compared with that under Admiral Togo, could only have been a matter of conjecture at the beginning of the war. It had one great advantage over that of the Japanese, however, since there was, behind it, an unknown quantity in the Baltic fleet, which its opponents could not afford to ignore. Behind the Japanese fleet, on the other hand, there was no reserve, since at that time Japan was not capable of building armoured ships. Consequently Admiral Togo did not dare to risk his battleships in an unequal combat, in which the end in view was not commensurate with the risk involved. The placing of the Russian fleet at Port Arthur instead of at Vladivostock, is considered to have been correct, since a naval concentration at the latter place would have been incompatible with a military concentration at Liao-yang. Whether the object to be aimed at by this fleet could best be attained by establishing command of the sea at the outset, and so rendering the over-sea transport of the Japanese army unsafe, or by waiting to attack those transports when engaged in conveying the army to the theatre of operations, is left open. With regard to this, the difference of opinion between Lord St. Vincent and Lord Hood in a parallel case is quoted, when, in 1801, Napoleon was preparing to invade England. It is pointed out that the Vladivostock squadron fulfilled its rôle as a detachment, while the stationing of the 'Variaig' and the 'Koreetz' at Chemulpho was a political move, and, as such, necessary.

Turning to the naval strategy of the Japanese, their main object was to ensure the safety of their military transports during their voyage to the theatre of military operations. To attain this, they

must neutralise that hostile force which could have molested these transports,—in this instance the Russian fleet. Admiral Togo's operations against this fleet were limited to confining it within the harbour of Port Arthur, where it was hoped that it would fall a prey to the army. He would have risked an action at sea in order to protect the transports, or to prevent a junction between the Port Arthur and Vladivostock squadrons, but he never attempted to draw the former out to sea in order to fight a decisive action. Had he done so, it is possible that a decisive victory might have had the effect of the Baltic fleet being kept at Libau, but the course which he did adopt is considered to have been correct, since he was favoured by the passive attitude of the Russians, and, as has been pointed out above, he dared not risk the loss of his armoured ships.

This volume appears to be incomplete in one important detail, namely, that little or nothing is said regarding the previous knowledge of the characteristics of the various commanders, or concerning the system of command on either side. A work of this type is written mainly for the serious student of military history, and the omission of this important factor in the problem which was set the opposing commanders at the beginning of the war, must detract somewhat from the value of the book. It would have been useful if some indication had been given as to the extent to which General Kuropatkin was under the orders of Admiral Alexeiev. It is evident that he had not an entirely free hand in dealing with the military operations, while it seems certain that Admiral Vitgeft was wholly under the orders of the Viceroy.

The book is also somewhat marred by pictures of some of the sea fights, which can hardly be accurate representations of actual scenes and do not in any way add to its utility. But, with the exceptions noted above, the work is complete and clear, the maps, charts, and plans are plentiful and easy to follow, and the various panoramas and photographs of positions are invaluable in conveying an idea of the ground round which actions took place. If the remaining two volumes maintain the standard of excellence set by the present one, it will undoubtedly prove the most valuable history of the war that has yet been written.

THE JOURNAL

OF THE

United Service Institution of India.

Vol. XL.

July 1911.

No. 184

SECRETARY'S NOTES.

I. The Members of the Council elected to serve on the Executive Committee for the year 1911-12, are :—

Lieutenant-General Sir D. Haig,
K.C.V.O., C.B.
Brigadier-General A. Hamilton-Gordon,
C.B.
Brigadier-General H. V. Cox.

Lieutenant-Colonel S. H. Powell.
Major G. F. MacMunn, D.S.O.
Major W. C. Black.
Captain J. Charteris.

II. NEW MEMBERS.

The following Members have joined the Institution during the months of March, April and May 1911 :—

Captain C. A. Vivian.
Lieutenant A. H. Muir.
Lieutenant A. E. Barstow.
Messrs. T. L. Hood & Co. (Subscriber).
Major R. N. Knatchbull.
Major H. J. Williams.
Bristol Aeroplane Company (Subscriber.)
Messrs. Dulan & Co. (Subscriber).
Brigadier-General G. Egerton.
Major C. B. Loring.
Colonel F. Hawkins. (Life Member).
Captain R. J. Rees-Mogg. (Life Member.)
Lieutenant B. Paget.
Captain C. Watson, R.E.
Captain L. P. Evans. (Life Member.)

Captain E. H. Wildblood.
Captain H. A. Holdich. (Life Member.)
Captain L. F. Bodkin.
Captain G. W. S. Sherloch.
Captain V. D. R. Seaton.
Captain T. A. Davis. (Life Member.)
Major R. F. Bell.
Captain C. A. M. Dunlop.
The Mess President, 99th Infantry
(Subscriber.)
Captain J. E. S. Brind.
Captain A. L. Hartley.
Lieutenant R. C. Seya.
Major C. C. Newnham.
Captain S. de V. A. Julius.
Captain O. D. Bennett.
Lieutenant J. Compton.
Major H. L. Holden.

III. TACTICAL SCHEMES.

To assist officers studying tactics, tactical schemes are issued, by the Council of the Institution, to members only, on the following terms :—

Rupees 5 per scheme, or Rs. 50 for a complete series of ten schemes, these charges including criticisms and solutions by a fully-qualified officer selected by the Council.

Two sets of schemes (10 schemes in each series), revised to 1911, are now available, and a third series is in process of preparation and will be ready shortly.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, Simla.

IV. MILITARY HISTORY PAPERS.

In order to assist candidates for the Staff Colleges, and other officers, in the study of military history, the Council of the Institution have decided, as a tentative measure, to issue, to members only, sets of questions on selected campaigns. The following papers are now available :—

- (a) Two sets of six questions each on the Indian Mutiny.
- (b) Two sets of six questions each on Callwell's Small Wars.
- (c) Two sets of six questions each on the strategy of the Russo-Japanese War.
- (d) Three sets of six questions each on the battles of the Russo-Japanese War.
- (e) One set of six questions on the Afghan War, 1878–80.

The charge for these papers is Rs. 5 each, or Rs. 45 for the set of nine, including criticism by fully qualified officers selected by the Council.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India.

V. CHANGES OF ADDRESS.

Besides keeping the Secretary informed of all changes of rank and title, members are particularly requested to notify any change of address.

VI. LIBRARY CATALOGUE.

The delay in issuing the new catalogue is much regretted. It is now ready.

VII. MACGREGOR MEMORIAL MEDALS.

The Council of the United Service Institution, on the recommendation of His Excellency the Commander-in-Chief in India, have awarded the following MacGregor Memorial Medals for valuable reconnaissance work :—

- To Captain G. E. Leachman, The Royal Sussex Regiment, a silver medal.
- To Jamadar Gurmukh Singh, 93rd Burma Infantry, a silver medal and an honorarium of Rs. 100.

CAUSE AND EFFECT IN THE FRANCO-GERMAN WAR.

II.—Influences at a crisis.

BY CAPT. G. M. ORR, 11TH (K. E. O.) LANCERS.

Before Napoleon left Paris on the morning of July 28th to join the army in the field, it had been decided that during his absence from the capital the Empress should have the powers of Regent. This produced a very curious situation, which had a direct influence on the unfortunate events about to take place in August. Although the Emperor never went beyond the frontier of France, the Empress Regent used her powers to convoke the chambers and choose ministers without his consent. The Emperor himself remarked, in the days after he had left Metz for Chalons, when he was implored not to return to the capital, that "Chief of the State, responsible to the French people, he was, by the force of circumstances, shorn of the rights he held from the nation, and condemned to be powerless while he saw under his eyes his army marching to an abyss." Throughout the period about to be recounted, the Emperor's policy as regards the employment of his armies was successfully opposed by the Empress Regent and the Palikao ministry, which she had called to office on the downfall of Monsieur Ollivier on the 9th August. Even before that date, when Napoleon had seen that his strategical plan could not be realised, and had announced his intention to withdraw his whole army to Chalons, the Government opposed his plan on the ground that a retreat on Chalons would have the worst possible effect on the people. After the events of the first days of August the opposition demanded that the Emperor should give up command of the army, with the consequence that on the 13th August he placed the command of the army of the Rhine in the hands of Marshal Bazaine, who for some reason had the confidence of the country, if not of the troops. On the 16th August the Emperor, with an escort of two regiments of Chasseurs d'Afrique, drove out of Metz to Verdun, whence he reached Chalons by train the same evening.

Meanwhile General de Montauban, Count de Palikao,* who had replaced Ollivier as President of the Council of Ministers, and had also taken over the portfolio of the ministry of war, had been making great efforts to raise three new army corps by utilising various marine battalions, *gardes mobiles*, and line regiments left in France. These corps were given the numbers 12, 13, and 14, and Generals Trochu, Vinoy, and Renault were nominated to the commands. General Trochu's appointment calls for some notice. He was credited with anti-imperialistic views and had got himself into trouble

* General Palikao had for the last five years commanded the 4th Corps at Lyons.

over a book on the Army in 1867. The Empress and the court party mistrusted him. After Le Boeuf had given up his portfolio to go as chief of the staff to the armies in the field, Ollivier had wished to make Trochu minister in his place, believing it to be a popular appointment, but the Empress had successfully opposed it. After the change of cabinet he was appointed on the 12th of August to the command of the 12th corps, which was to be formed at the camp of Chalons. He reached Mourmelon station* on the evening of the 16th August to find the Emperor had just arrived. After reporting his arrival and his appointment to the Emperor, he was bidden to attend a council of war to be held next morning. The officers attending the council beside the Emperor and General Trochu were the Emperor's cousin, Prince Napoleon, General Schmitz †, and General Berthaut.‡ Marshal MacMahon, commanding the 1st corps, who had reached Chalons camp that morning, and General Courson of the Emperor's suite, joined the council later.

To understand the decision to which the council of war came, one must clearly understand what information was at its disposal on the morning of the 17th August. Nothing was as yet known of the fighting at Rezonville and Mars la Tour on the 16th, and the Emperor had no reason to suppose that Bazaine had been prevented from carrying out his intention of the 15th of reaching Verdun on the 16th, in spite of the fact that the heads of hostile columns had been reported south-west of Metz. Of the French army concentrating at Chalons camp, the 1st corps (MacMahon) had finished assembling its four divisions, but its artillery had only reached Montierender and its cavalry the vicinity of Cloyes: the Vth corps (Failly) had detrained the 1st division at Blesmes and St. Dizier for the protection of the Chaumont-Chalons railway, while its remaining two divisions, artillery, and cavalry, were awaiting their trains at Chaumont: of the VIIth corps (Douay) the division which had fought at Worth and accompanied MacMahon in the retreat had reached the camp, but the two remaining divisions, their artillery and cavalry, were still at or near Belfort, waiting to be entrained: of the XIIth corps (Trochu), the 3rd division, and one brigade only of the 2nd division, were at the camp, while the units of the 1st division were just beginning to arrive, and the corps artillery and cavalry were still incomplete. During the day Bonnemains' reserve cavalry division moved from Vassy to Frignicourt, and Margueritte's and Tillard's brigades, destined to form a 2nd reserve cavalry division under Margueritte, joined hands at St. Maneould some time during the night, 17th-18th August.

The first points discussed at the council were the disadvantages of the vicinity of Chalons camp as a defensive position and the

* The station for the camp of Chalons.

† General Schmitz was Chief Staff Officer of the 12th Corps.

‡ General Berthaut was commanding the 6 regiments which had been formed of The 18 battalions of the *gardes mobiles* of the Seine.

insubordination of the 18 *gardes mobiles* battalions, and the unpreparedness of these latter to take their place in a field army.* The proposal to send them to garrison the towns and forts in the north had met with vigorous protests from both the civil and military authorities of that region. It was finally decided to send them back to Paris, a course strongly advocated by General Trochu. General Schmitz, in answer to a question, considered that the army, owing to its state of disorganization, should concentrate under the walls of Paris and not at Chalons, and he suggested that Trochu should be appointed to the military governorship of Paris. Prince Napoleon warmly seconded the proposal, saying Trochu was the man to avert the dangers of a revolution: "Sire," he continued, "you have but lately abdicated the government at Paris, you have just given up the command of your army at Metz. Unless you intend crossing into Belgium you must reassume either the one or the other. The latter is impossible, while the former is full of peril since you must return to Paris; but what the devil is one to do! If we have to fall, let us at any rate fall like men." The Emperor, eventually at MacMahon's instigation, asked Trochu if he would accept the post. Trochu replied that he would do all in his power to avert a revolution which at such a moment would mean the ruin of the country; that he would undertake the measures for the defence of the capital, but it was on the understanding that the Emperor returned to Paris and that the army at Chalons should follow in his wake. This decision was telegraphed to Paris, and Trochu left later in the day with full instructions. It had also been decided that Marshal Bazaine should become generalissimo of all the French field armies, while under him Marshal MacMahon took command of the army of Chalons. Generals Ducrot and Le Brun took over command of the 1st and 12th corps respectively, while General Faure was appointed as Chief of the Staff to MacMahon. In a later interview with MacMahon the Emperor affirmed that he would in no way interfere with MacMahon's direction of operations, and that MacMahon's correspondence should be solely with Marshal Bazaine and the minister of war, and that all information received at Imperial Headquarters would be at once transmitted to the Marshal.

At 7.30 A.M., on the morning of August 18th, MacMahon telegraphed to Paris that if the enemy advanced in force he would withdraw to the line Epernay-Reims; he added that he would try and join hands with Bazaine. This latter portion of the message was written under the belief that Bazaine was in retreat from Metz, and did not affect MacMahon's intention of retiring on Paris. Nor was his intention altered when he received in the morning from the Emperor the message sent the previous evening by Bazaine to the effect that he had repulsed the enemy on the 16th, that the French troops had passed the night on the battle-field, but that

* See note on *garde mobile*, page 249

owing to the great expenditure of ammunition and the need of replenishing supplies he had been obliged to withdraw nearer Metz, and, finally, that he thought he could continue his retreat on the 19th by a more northerly route. At 7 P.M. MacMahon telegraphed to Palikao that he would move the army on the 21st to Reims, a course which Palikao approved, while suggesting that on joining Bazaine they should combine and strike the right wing of the German army, and then turn on the Crown Prince of Prussia's army moving from Nancy.

Meanwhile on the 17th the news of the Emperor's intended return to Paris caused the greatest consternation. The result of the deliberations of the Empress regent and her ministers was that at 10 P.M. Palikao telegraphed to the Emperor, "The Empress informs me of the Emperor's intention to withdraw the army of Chalons on Paris. I beg the Emperor to give up this plan which will appear to abandon the army of Metz, which at the present moment is unable to reach Verdun." After pointing out the strength which the army of Chalons would reach in three days' time the telegram continued, "Cannot you make a strong diversion, against the Prussian corps already shaken by numerous combats? The Empress shares my opinion." Napoleon agreed in a telegram at 9 A.M., 18th August, not to return to Paris, but did not consider it necessary to say anything to MacMahon, since the latter's move to Reims would still leave either course open. At 3 A.M., on the 18th, Trochu, who had not reached Paris until 1 A.M., presented himself at the Tuilleries, not knowing of the telegraphic correspondence which had taken place regarding the move to Paris. The Empress at once informed Trochu that there was no thought of the Emperor, or the army, returning to Paris, but that he must of course stay to organize the defence of the capital. Trochu strongly disapproved of the decision not to let the army withdraw on Paris, and would have resigned his appointment had he not felt that such a course might in itself precipitate a revolution. He had drawn up a proclamation announcing his appointment by the Emperor, but the name, and all mention, of the Emperor was erased by order of the Empress, such was her fear of exciting public feeling. In vain Trochu protested that he considered the retention of the Emperor's name advisable. "No," said the Empress, "the name of the Emperor must not appear in a proclamation at the present time."

On the 18th several telegrams passed between Bazaine and Chalons relative to the commencement of the battle of Gravelotte-St. Privat. The last, sent at 7-50 P.M., said that all fire had ceased and that his troops were holding their ground.* During the day Bazaine had also informed MacMahon, in answer to his request for instructions, that since for the moment his field of operations

* At about 5 P.M., or a little after, there had been a lull in the fighting. The attack on St. Privat commenced about 6-15 and the village was captured at 8 P.M. In the southern portion of the field Steinmetz' corps were again being repulsed about 7 P.M.

was so far from his own, he presumed the minister of war would give him orders. During the 19th no further information * came in to make MacMahon alter the impression formed the night before that Bazaine had held his own, and would retreat probably in a north-westerly direction. Nevertheless, in reply to Palikao's insistent advice to extricate Bazaine, MacMahon telegraphed his resolution to move with that intention.

All that day MacMahon must have weighed in his mind the courses open to him and his army. The unfitness of that army as yet to meet an enemy in the field must have been apparent to him in spite of the instinctive knowledge that those corps who had fought so magnificently at Worth, and who had been defeated through no fault of their own, desired nothing better than to meet the enemy again as soon as possible. He knew that the Government and the Empress both required him to move to the help of a comrade in difficulties. His own desire to wipe out the memory of his defeat led him in the same direction. The idea that if he marched his army in any direction but towards Bazaine, he would appear to be turning his back on a comrade and leaving him in the lurch, was an insidious one. But, after all, he must have thought, was it not France he must think of; had he not reason to doubt, not so much the honesty of the Government's policy, as its ability to appreciate correctly the situation? Did not perhaps the Government and the Empress let their desire to extricate at all risks an army devoted to the Empire, outweigh considerations which might have found a more prominent place if it had not been for the spectre of the revolution at their doors. For a moment perhaps MacMahon may have let the thought enter his mind that the man who had but recently intrigued against the sovereign in whose cause he was commanding the troops in Mexico, was not proof at such a moment as now against looking to his own interests, and that a move towards Bazaine would quicken that general's decision to fight his way out, rather than by inaction preserve an army for his own ends. Such were the thoughts that may well have crowded the harassed general's mind, and like many another man his decision was a compromise. If he appeased the Government by saying he would try and help Bazaine, and at the same time moved to Reims, no harm was done.

On the morning of the 20th August every effort was made to get into communication with Metz, but without result, and that evening orders were issued to the army, which had now practically concentrated at the Chalons camp, to march next day to Reims. The state of the army and the character of its leaders and staff were factors of the highest importance in coming to a decision as to the use to which the army was to be put. MacMahon could not have been blind to them. MacMahon had as his chief of the staff, General Faure, a man who had not the qualities for such a post. If the commander-in-chief had followed his own inclination

* Communication with Metz was cut.

he would have appointed Le Brun, but the latter had been nominated to the command of the 12th corps. MacMahon had proved himself a brave divisional leader in the Crimea, and his initiative as a corps commander at the battle of Magenta in 1859 had won the day for the French. In spite of his defeat at Worth and the trying retreat after it, he still appears to have had the confidence of his troops. Ducrot, commanding the 1st corps, was a brave and experienced leader. Most of the staff of the 1st corps had been taken by MacMahon to form the army staff, and Ducrot had only been able to make good the deficiencies from regimental officers. The corps had suffered severely both at Weissemburg and at Worth,* and had since undergone a long and arduous retreat in bad weather. Irregularity of supplies during the retreat had led to much marauding and insubordination, and the troops had generally lost confidence in themselves: "physically and morally the men were in a weak state on their arrival at Chalons." It was not even possible to make good their losses in clothing and equipment, though the *gardes mobiles* returning to Paris handed over all their knapsacks. Failly, who commanded the 5th corps, owed his appointment to the Emperor, whose aide-de-camp he had been, and to his share of the victory at Mentana, where, as he wrote, "the chassepôts had worked wonders." Although the men of his corps had not been engaged with the enemy, yet the long retreat, the bad supply arrangements, contact with the *debris* of the 1st corps, contradictory orders, all had shared in the effect of undermining their discipline and *moral*. MacMahon's defeat was in great measure attributed to Failly's dilatoriness in coming to his aid, and the confidence of the troops in their corps commander was shaken.

Douay, the commander of the 7th corps, had distinguished himself as a subordinate commander in Mexico. He was a man who would carry out orders clearly given him, but who perhaps failed in the power of taking responsibility, or of showing any initiative. His corps, too, arrived at Chalons shaken in *moral*. While its 1st division had suffered very heavily at Worth and shared in the retreat, the other two divisions had undergone many alarms and counter-marches east of Belfort, and had spent long hours in, and waiting for, trains to take them to Chalons. The story of the 7th corps is inimitably told in Zola's great book "*La Debacle*." The needs of the 1st division in clothing, equipment, and ammunition, had by no means been made good, and the transport of the corps was mostly requisitioned. The new commander of the 12th corps, Le Brun, had had little experience in command of troops when he suddenly found himself at the head of a very heterogeneous assembly. The 12th corps was originally to have included the 18 battalions of *gardes mobiles*, but these were fortunately replaced by Grand-Champ's division of line regiments brought from the Spanish frontier. The 2nd division was composed entirely

* See note on losses at Worth, page 249.

of *regiments de marche*,* most of whose battalions were commanded by very inefficient officers. The non-commissioned ranks were filled with old soldiers no longer physically capable of standing the hardships of a campaign. The strength of battalions varied considerably and the proportion of company officers to men averaged only 3 to 200 and 250. The ranks were filled with either young recruits with no training or old men long since passed out of the army. The new rifle, the chassepot, was quite unfamiliar to them, and before leaving Chalons they had fired on an average only five practice rounds each. A brigade of the 6th corps, which had been unable to get into Metz, was attached to this division and consequently gave it a measure of stiffening. The 3rd division of the corps was formed of 12 battalions of marine infantry, fine troops, but quite unused to route marching. Neither the 2nd nor 3rd division had a hospital pannier or a stretcher, and it was some days before a doctor even was attached to the 2nd division. Two of the divisions of the corps had no reserve ammunition, and the administrative services were far from complete. Of the two divisions of reserve cavalry, Bonnemain's had little to credit itself with for its share of the fighting at Worth, although it had lost 7 of its 12 guns. The 2nd division was formed on the 18th of Margueritte's brigade which had escorted the Emperor out of Metz, and of Tillard's brigade of the 6th corps cavalry division. Margueritte took command, but had no proper staff; the division possessed no hospital or veterinary material, and was besides very short of transport.

Such was the army of Chalons when, on the 21st, it was called on to march to Reims, the first of the arduous marches which ended ten days later at Sedan. In nearly all the corps, staffs were improvised and the staff work throughout was execrable. One writer on this portion of the war says the army staff appeared to have their heads turned by their high position and became secretive and unapproachable. If information was asked for, a mystery was made of giving it. March orders never said more than the hour of starting and the order of march (and that was generally altered). *Le reste allait à la grâce de Dieu!* Another writer says, the two words "Debrouillez-vous" summed up the principles of war as understood by the staff of the French armies. The French official account says, "The reverses during the first period of the campaign had undoubtedly taught many lessons, but the army as a whole had not been able to profit by them, because once war has begun things cannot be improvised; it is nearly impossible during the progress of operations to modify what has been learnt in peace."

The march on the 21st revealed fully all the weaknesses of the army, and few of the formations reached the places allotted them. Bad staff arrangements, unnecessarily long marches (20 and 21 miles in the case of the untrained 12th corps), very hot and dusty weather, want of march discipline, all tended to make the day one

See note on formation of "regiments de marche," page 250.

of great hardships for an army composed of the element we have seen. Boots had been served out wholesale, but never fitted, and the numbers of newly-joined men that fell out were very great, both on this and on succeeding days.

Marshal MacMahon reached his headquarters at Courcelles at 7 P.M., and there learnt that the Emperor wished to see him. That morning Palikao, from a telegram to the Emperor, appeared to lean to the idea that the army of Chalons should march at once against the Crown Prince of Prussia, and he proposed sending the 13th corps in support to Ferté sous Jouarre, but at 5 P.M. he wired to MacMahon that he considered it indispensable for MacMahon's army to extricate Bazaine. "Think," he said, "of the effect produced if Bazaine's army, which has fought so heroically and which is composed of such fine troops, should be abandoned. Let me know your intentions." Nevertheless MacMahon felt the best course open to him was to retire on Paris, and with this intention in his mind he went over to the Emperor's pavilion, accompanied by his chief of the staff. With the Emperor he found Rouher, the president of the Senate, who had come unofficially to persuade the Emperor to move, not on Paris but eastwards. Rouher endeavoured to convince MacMahon that there was no need to withdraw under the walls of Paris, and that the apparent abandonment of Bazaine would have the worst possible effect. He said he was expressing the opinion of the Empress and the council of ministers; that although the Crown Prince of Prussia was no doubt making for Paris, yet surely there was time to join hands with Bazaine and then turn on the Crown Prince.

MacMahon pointed out that the latest information showed Bazaine to be surrounded by 200,000, that the Saxon Crown Prince was in the vicinity of Verdun with 80,000, and that the Crown Prince of Prussia was near Vitry with 150,000. In the circumstances it was too risky to move east. Suppose the army of Metz was defeated, then it was of the greatest importance to preserve the army of Chalons, so that it might form the nucleus of a reorganized army of France. Faure gave it as his opinion that the only solution was to withdraw westward. MacMahon concluded by saying that, sick at heart as he was at the thought of leaving Bazaine to the fate they hoped would not be his, and conscious that if his comrade met with a disaster, he would be accused of cowardice for not having helped him, a withdrawal on Paris was in the interest of the country and that was the course he intended to put into action on the 23rd, unless he received instructions to the contrary from Bazaine. M. Rouher was at last convinced, and himself suggested MacMahon should be appointed generalissimo of all the forces at Paris and Reims, and given the task of defending the capital. He also advised the Emperor not to enter Paris except at the head of a victorious army. Then and there instructions were drawn up for MacMahon, and proclamations made out which were to be issued to the troops and to the people of Paris, explaining why the army was to move on Paris and not to Metz.

The Emperor's state at this time was pitiable—a body wracked with pain and a mind torn with thoughts which he no longer had the power to put into action. He could neither enter his capital and govern his country, nor command his army though he shared its march.

It is interesting to consider at this juncture what might have been the best course to pursue. The alternatives as they appeared to MacMahon seem to have been either to move to the aid of Bazaine or retire on Paris. No mention is made of a third alternative, namely, to withdraw southwards. MacMahon does not seem to have had any doubt that, militarily, nothing was to be gained and much could be lost by attempting to join hands with Bazaine, but other influences were at work, influences which always have effected, and always will effect, generals in the field.

MacMahon on the 21st had come to the perfectly correct conclusion that it was no use moving towards Bazaine. At the same time the Government in Paris said, "don't abandon Bazaine," and added "because if you do, the effect will be terrible." On whom would the effect be terrible? On themselves or on the country? There were no doubt signs that another disaster to the French arms would mean the overthrow of the Government, and, with the Government, the Empire. The Government was like a drowning man grasping at a straw, and the straw was the imperialist Bazaine with his army. They were too ignorant and too shortsighted to realise that to go by the most direct road to the help of Bazaine was courting failure, and that he could be helped indirectly with much greater chance of success. There was nothing to show that the people of France would have risen up and disbanded MacMahon's army because it moved in some direction other than straight to Bazaine. MacMahon knew the temper of the French just as well as the Government in Paris, who were frightened only of what the Paris mob would do to them and to the Imperial dynasty.

To go direct to Bazaine an army would have had to move through the difficult country of the Argonnes and would have presented its flank in closer proximity every day to the enemy's forward movement. The closeness of the Belgian frontier limited the area of manoeuvre to a very appreciable extent. In fact the march was of so hazardous a nature that it should have been abandoned. Metz was known to have sufficient supplies to withstand at least a two months' siege, and Bazaine might reasonably have been expected to keep Frederick Charles' supposed 200,000 before the fortress during that time. Paris itself was fortified and garrisoned by the newly-raised 13th corps and some 100,000 *gardes mobiles*, and should have been safe from a *coup de main*. MacMahon's army of 130,000 was in the face of an enemy not only superior in numbers but in *moral*, flushed as it was with victory. The state of the French army had been fully revealed in the march to Reims that morning. Its elements had need to become better disciplined and more inured to field operations; the bigger formations, composed

as many were of hastily collected units, required to be more fully organized; confidence had to be restored in those corps which had lately suffered defeat; many portions of the administrative services had still to be completed. Such an army was not prepared to meet an enemy superior in numbers and *moral*. Time and opportunity were required to complete the one and restore the other. It remained, therefore, to decide what direction had best be taken to accomplish these things, and after that be in a position to act offensively against the enemy with the object of relieving the pressure on the beleaguered army of Metz. To take the army into Paris or its vicinity was unsound. The enemy would probably have liked nothing better than to have forced it into Paris and then invested it. From the enemy's point of view an assault or siege of Paris would be a difficult task even without the army of Chalons within its forts; investment would be a matter of food, and the larger the garrison the quicker would the pinch of starvation be felt.

The Government in Paris were making strenuous efforts to form more corps to augment the armies in the field, and it was from the centre and south of France that these were to come. It was, therefore, to the south of Paris that the army of Chalons should have gone. In that region, too, the question of future supplies would be easier. If the enemy followed, then between the Seine and the Loire there would be found a country, the natural features of which would materially help to neutralise inferiority in numbers. Once south of the Seine it would be possible to manoeuvre behind that river and the Yonne, if necessary falling back behind the Loire. Measures would have to be taken to induce the enemy to separate his forces and opportunities made to strike at isolated portions. The further from Paris the army went, the wider would be the separation from the enemy's army which would have to be left to invest, besiege, or occupy the capital. At this period detachments might perhaps have been made to the north of Paris, and towards Belfort to organize fresh levies and threaten the very vulnerable lines of communication of the hostile forces, thus causing the enemy to make corresponding detachments. Then utilising the favourable line of the railways west of Paris and south of the Loire, the new army of France could have concentrated suddenly against one of the detachments. Thus the confidence of the troops would be raised by small successes. It may be said that no good could have come of dividing the French forces up, and that they should have concentrated at once. So they would have done for the final blow, but meanwhile until the time was ripe for that blow, there were advantages in division.

By moving the army of Chalons southwards, the mere fact of separating it from Paris would have given the enemy a double objective and perhaps sown discord in the minds of the royal headquarters. The politician would have wanted to occupy Paris, the soldier to follow up and destroy the enemy's field forces, with the result that friction would have ensued. Taking into account the

impressionable nature of the French and the wonderful prestige attached to the acts of the great Napoleon, operations in the country made famous by his campaign of 1814 would not have failed to have a peculiar effect. Finally with augmented numbers and increased efficiency, a bold offensive might well have been conceived against the enemy's flank and line of communication, say, in the direction of Pont-a-Monsson.

A march south-west from Reims would have had the advantage of coming into frequent touch with various railways, thus facilitating the supply and transport question to a great extent. The railways would not have been able to help the movements of troops themselves since there would not have been time to collect the necessary rolling-stock. The march from Reims should have commenced not later than the 23rd. To pass the army of Chalons from Reims to the south-west would, to a certain extent, have necessitated a flank march across the front of the enemy's advance, if that advance continued straight on Paris. The attention of the Crown Prince of Prussia would have had to be diverted and measures taken to make him turn northwards even for a day. To do this, false information of an intended march north-east should have been disseminated and arrangements made to make an actual message to Bazaine, from Imperial Headquarters, to this effect fall into the Crown Prince's hands. The mayors of the towns between Chalons and Montmedy should have been ordered to prepare supplies for the army. The press should have been given false information. A free press cannot be muzzled, but it can be made use of. The Imperial Headquarters should have been moved at once in a northerly direction and the fact made known; meanwhile arrangements could have been made to carry them off by rail. Finally, since a clever commander would not be misled by false information alone, a detachment should have been made to threaten a move towards Montmedy and having obtained contact to draw away to the north-west. Such a force might have been composed of the 2nd and 3rd divisions of the 7th corps and a large body of cavalry, for instance the four brigades of reserve cavalry and the 7th corps cavalry brigade all under Donay. When the time for withdrawal came, the infantry could have been got away by rail if arrangements were made to have stock ready at, say, Mezieres and neighbouring stations. The cavalry would have had to withdraw, unaided by the railway, but might have been supplied with remounts somewhere north of Paris.

On the 22nd August, MacMahon was engaged in dictating orders for the retreat of the army of Chalons from Reims to Paris, when he received a telegram, dated the 19th, from Bazaine, reporting the battle of Gravelotte. In this he stated that, although the troops wanted two or three days' rest, he counted on gaining Chalons by way of Montmedy and Saint Menehould, or by Sedan and Mezieres. MacMahon apparently inferred that by now, the 22nd, Bazaine had got out of the mesh and was on his way. Consequently circumstances were altered, and now a diversion against the flank of the enemy,

who no doubt would be trying to cut Bazaine off, would really be of some use. He therefore cancelled the order for the retreat to Paris and wrote orders for a move towards Vouziers, his intention being not to march to Metz, but to make a diversion to the north-east. Meanwhile M. Rouher had returned to the capital and told the Government that MacMahon was going to retreat to Paris. Palikao at once telegraphed to the Emperor reiterating the dangerous effect such a move would have on the people and begging him not to permit it. Palikao's plan, which is very severely criticised in the French official account of the war, was for MacMahon to march east and fall on the Crown Prince of Saxony's army, which was inferior in numbers, between Verdun and Etain. The success of the plan depended on the Prussian Crown Prince's army continuing on Paris. Palikao ignored the absolute certainty of the Prussian Crown Prince discovering the move in ample time to turn north and take MacMahon in rear. He ignored the fact that for such a manœuvre the army of Chalons required a high form of mobility which it simply did not possess. He failed to see that with such a plan the alternative to improbable success was certain disaster.

On the same day, the 22nd, both the Emperor and Palikao received messages from Bazaine, dated the 20th, from which it was evident the Germans were closing in all round Metz. These messages were not passed on to MacMahon. Another mishap was that a message sent by Bazaine direct to MacMahon miscarried. This message contained the sentences ". . . the enemy continually closes in around me. . . I shall warn you of my march if I can still undertake it without compromising my army." It does credit to MacMahon's heart rather than his head that in the enquiry on the war he said that this information would have made no difference to his decision to go to Bazaine.

On the 23rd the army marched to the Suisse, in very wet weather. The next day the necessity of getting in touch with the railway in order to obtain supplies caused MacMahon to concentrate on Rethel. The very fact that he moved on Rethel showed he considered his march not as being one towards Metz but northwards, whence he could retreat on Paris if necessary. By the 26th the army, pivoting on Vouziers, had swung round so as to move on Stenay. Bad staff work and execrable weather combined to make the marches very hard although the distances traversed were not great. That day MacMahon wrote to Bazaine that he knew the enemy was in strength between the Meuse and the Aisne, and that the Crown Prince of Prussia had passed St. Dizier. "I cannot," he said, "go much further east without news of your plans, for if the Crown Prince of Prussia marches on Rethel I must retire."

On the 27th, MacMahon moved his headquarters to Le Chesne Populeux. There he learnt that Bazaine was still in Metz on the 26th, that 50,000 men were on the Meuse between his own army and Metz, that the Prussian Crown Prince had turned north, and that the enemy had been reported in Chalons, and even in Reims.

Thus MacMahon's communications with Paris were threatened. He therefore resolved to regain Paris *via* Mezieres. After reporting his decision to the Emperor, and writing a message to Bazaine, he telegraphed, at 8 P.M., his intentions to Paris, and issued orders for the march on Mezieres.

At 1 A.M. on the 28th the answer came from Palikao: "If you abandon Bazaine, it means a revolution in Paris, and you will be attacked by the whole of the enemy's forces. From an enemy without, Paris will guard itself. Work on the fortifications is finished. It appears to me urgent that you should make your way to Bazaine. . . . you have at least 36 hours' start of the Crown Prince of Prussia, if not 48 hours. In front of you, you have only a portion of the force blockading Metz. . . . Here everyone has felt the necessity of extricating Bazaine, and the anxiety with which we follow you is extreme."

MacMahon was once more in a quandary. Palikao, to make more certain of his plan being carried out, sent a second telegram, "In the name of the council of ministers and of the privy council, I request you to move to the aid of Bazaine, and profit by the 36 hours' start which you have of the Crown Prince of Prussia. I am sending Vinoy's corps to Reims."

It appears, however, that before this reached MacMahon he had counter-ordered the move on Mezieres.* The Emperor, when he was informed of the change of plan, was much averse to it, and for the first time ventured to advise MacMahon, telling him that the despatches received from the minister of war did not constitute orders. MacMahon's answer was to the effect that he would not change his orders again, and that come what may, this last decision was final.

The events which took place between 17th August and the 27th are most interesting from the point of view of the relationship between the commander of an army in the field and the government he serves, when the former is called upon to act against his own professional judgment. One of the maxims of the great Napoleon deals very clearly with this question of the interference of the government with a commander in the field, and we find Sir John French saying, in the course of his remarks on the manœuvres of 1910 at home, that the interference of a government with a commander-in-chief has frequently been brought forward as a reason why certain operations should not be undertaken: "He could never agree with this argument, and was most decidedly of opinion that if a commander in the field were prevented by his government from disposing his troops in the manner which seemed to him most likely to ensure success, he should resign his command."†

Such a decision in the face of the enemy and at a crisis of a war is the most difficult that can be conceived. If the commander

* This order in some cases did not reach the troops until they had already started, and the confusion that ensued was great.

† *The Times*, 26th September 1910.

does resign it is no doubt the strongest argument against the course which he has been asked to take; but at such a time, are the interests of the country any better served by the presumably most competent soldier giving way to another who is content to carry out orders, or who has not the courage of his opinions?

In this particular case MacMahon was under Bazaine's orders, but Bazaine had bidden him take his orders from the war minister. The war minister in Paris had called upon him to succour Bazaine, but, not content with giving him this task, he had proceeded to lay down exactly how it was to be done. MacMahon fully realised the disadvantages of the plan, and that his Imperial master was in agreement with him, but he apparently never put the case from his point of view before the war minister. The latter had a perfect right to state what the Government wanted done. MacMahon erred in not pointing out clearly and forcibly the undesirability of doing it in the particular way suggested. He clung to the knowledge that his line of advance from the 18th to 27th did not commit him absolutely. He might well have employed those days in pointing out the error of the Government's ways. On the night of the 27th, however, he had definitely to make his decision. Either he must obey or he must hand over the command to another. Did he choose the former course because he was not strong enough to face the alternative, or did he, weighing the alternative, consider his country was best served by staying to lead his troops in the forlorn hope?

Whether he was weak or strong, it is an interesting study, in that it is a situation which is by no means uncommon. There are few men who do not follow the line of least resistance, nor will it be the last time that a commander in the field will have to decide between his government's orders and his own judgment. Sir George White was forced to occupy Dundee and narrowly escaped disaster. Kuropatkin was faced with the same dilemma and sent Stackelburg to certain defeat. If there is one nation more than another that should take the lesson to heart, it is ours. The nation knows nothing of war, and comes but little into contact with those who study it. It cannot appreciate the necessity of strategy forming part of policy in peace, or of leaving the leader of the army, which is the instrument to enforce their policy, free to carry it out in war. Our war minister is a civilian. He cannot divest himself of responsibility. Therefore much depends on his capability of forming an opinion on military projects and strategy. He should know something of war, but above all he must learn the limit of control.

Note.—Books chiefly consulted:—The French official account of the war; *The War of 1870*, by M. Welschinger.

NOTE 1.
THE GARDES MOBILES.

The Garde Mobile was the creation of Marshal Niel and dated from 1st February 1868.

It was to embrace within its reach all unmarried men or widowers without children, who had escaped forming part of the annual contingent, or those who had found substitutes. Service was for 5 years with 15 days' training a year. It was reckoned that at the end of 5 years the effective strength of the territorial force would be 550,000 men. Each civil department formed units of infantry and artillery in proportion to its population. No one battalion was to number more than 2,000 men in eight companies, but the strength of companies and battalions varied considerably. The idea had been to choose the officers for this army from among those who, by reason of their civil position as heads of industries, or as landowners, might be expected to carry with them respect and the habit of command. Many commissions were given not only to officers and non-commissioned officers who had retired from the regular army, but who had been retired from it. When war broke out the organization was far from complete and there was considerable misunderstanding as to whether it was the local civil, or military, authority that was responsible for the mobilization.

NOTE 2.
FRENCH LOSSES AT WORTH.
(Extract from *Henderson's Study of the Battle of Worth.*)

Corps.	Divi- sion.	Brigade.	Regiment.	Strength	Loss.	Percentage including prisoners.
1st Corps.	1st	1st	13th Chasseurs Btn.	900	788	87
			18th Line Regt.	1,950	430	22
		2nd	96th "	2,250	665	29
			45th "	1,950	410	29
	2nd	1st	1st Zouave "	2,010	408	20
			74th Line Regt.	1,500	888	58
		2nd	78th "	1,500	1,200	80
			1st Turcos "	1,500	800	53
	3rd	1st	2nd Zouaves "	2,090	1,100	54
			8th Chasseurs Btn.	900	600	66
		2nd	36th Line Regt.	1,650	1,000	51
			2nd Turcos "	2,040	1,900	93
4th	1st	1st	48th Line "	1,950	1,200	80
			3rd Zouave "	2,040	1,580	77
		2nd	56th Line "	1,950	566	29
	2nd	1st	1st Chasseur Btn.	900	593	65
		2nd	3rd Turcos Regt.	2,340	850	36
7th Corps.	1st	1st	17th Chasseur Btn.	900	500	55
			3rd Line Regt.	1,950	1,000	51
	2nd	47th "	47th "	1,950	1,250	64
			99th "	1,950	600	30

Total loss in infantry was 50 per cent ; in cavalry, 32 per cent ; in artillery, 17 per cent. In addition there were lost—28 guns, 5 mitrailleuses, 91 ammunition wagons, 1,193 horses, 158 wagons, 23 cart-loads of rifles, sabres, etc., and one eagle.

NOTE 3.

REGIMENTS DE MARCHE.

Each regiment of the regular army was organized in peace with 3 battalions of 8 companies each.

For war these 3 battalions each mobilized 6 companies with a total strength of 800 per battalion.

The 7th and 8th companies of the 1st battalion with the 7th companies of the 2nd and 3rd battalions formed a 4th battalion of 4 companies with a strength of 600 men. The 8th companies of the 2nd and 3rd battalions formed the regimental dépôt.

The *regiments de marche* were formed by taking the 4th battalion of 3 different regiments and expanding each 4th battalion to 6 companies. Thus the "regiment de marche No. 1" was formed of the 4th battalion of the 1st, 6th and 7th line regiments.

THE DECLARATION OF LONDON.

By W.

The opposition to the ratification of the Declaration of London is an interesting study, for the reason that it has passed from one extreme to another; and from studying the opposition as it was voiced, a feeling is produced that the Declaration of London is a much better thing than it appeared to some at first sight.

The opposition commenced with "Jingoism." Many people, including some Naval officers, suspected that our belligerent rights were curtailed by certain articles, and argued hotly that this must not be allowed. The latter opposition has been from commercial bodies, and has had for its inspiration a feeling of apprehension, or, shall we say, "fear."

These two extremes, Jingoism and fear, are impossible to reconcile. To the continuous observer, therefore, it appears that there is something wrong with the opposition all through, and consequently there may be much to be said for the agreement as it stands.

It is not necessary to repeat all the arguments that have been adduced against the much abused Declaration. The arguments have been fully detailed in the Public Press, and in Service papers. Taken as a whole, and as representing the views of a definite school of thought, they appear to show two leading characteristics. These are—a lack of breadth of vision, and secondly, an ignorance of modern naval war, and of Admiralty principles.

The constant voicing of these opposition arguments has been a good thing in one way, as Sir Cyprian Bridge said the other day, not so much because the arguments are given to the public, but because it is made plain how widespread is the ignorance of naval principles. From the latter it can be shown that our danger is from an uneducated people, rather than from our enemies, a fact which it will be a delicate and difficult matter to bring home to the public.

Let us deal first with the Jingoes. These see our rights at sea threatened. They argue chiefly from facts which were true in the time of Napoleon, but which do not apply now. The times have changed. In those days we were supreme at sea, we were opposed to practically the whole world on the sea, and it did not much matter whom we offended by our acts at sea. It was in those days that our commercial superiority at sea was built up. Nowadays our superiority remains, but there are others to be considered. We do not propose again to pit ourselves against the whole of Europe, or the whole world. There would be nothing to be gained by it. So it follows that in any future war we shall, if belligerent ourselves, be in alliance with some other power or powers, and there

will be also neutral powers whom we shall not wish to draw into the list of our opponents at the time. Then any agreement which protects neutral commerce will protect our own and it is for the protection of neutral commerce that the Declaration is primarily intended.

If we are belligerent, we know exactly how far we can go in the matter of depredations at sea, without offending the susceptibilities of powerful neutrals, whom it may be exceedingly injudicious to annoy. Our belligerent rights are really in no way threatened.

It is argued that we cannot touch the large food-supplies going up the Channel to be imported into enemy country through neutral ports. This is really not the case. If an ultimate enemy destination can be proved, the principle of continuous voyage will be applied, and the ships will be fair prey.

It is argued that the new rules of blockade are such that we can never hope to apply them. This remains to be seen; but it can be said that the area which a ship can effectively blockade is larger than before, and with the ships we have, it may be still possible. Moreover, we are practically the only nation that will be able to carry out an effective blockade under the new conditions, a point that is rather in our favour.

It is pointed out that our representation on the board forming the International Prize Court is very inadequate. It is certainly so; but our interests are safeguarded in that the Court is not an arbitration board, but a body that will adjudicate cases on evidence according to fixed rules, from which no deviation is possible from sentimental or other motives. A palpable deviation from justice will lead to war, and the members of the board will know this and the knowledge will keep them straight.

The chief point that is now exercising men's minds, and over which the Chambers of Commerce in England, India, and the Colonies are very nervous, is the so-called danger to our trade. The apprehension felt can be divided into two heads. A great point is made of the possibility of panic in England on the outbreak of war, which will lead to riots and a "Stop the war" cry from the populace.

It is argued that this is foreseen by our possible enemies, and is a factor of war that will be exploited by them to the utmost. There is a great deal in this argument. But on the other side it can be said that our own administrators, and our War Staffs, may have foreseen it also. Although the fearers of panic, and those who consider the populace supreme, cannot perhaps realise the higher questions involved, yet it is hard to think that, in an organised state such as ours, nothing has been thought of in the way of the control of food-supply in war, and repressive measures against rioters. Much that is written goes to show that the people generally have no idea what a big war means. They are accustomed to look on soldiers as the only people concerned with war, and they think that the conditions of war can never be applied in England. It will be a rude shock to them when they come under discipline, as they surely will

have to when the nation is involved in a big war. The consolation of those that think a little higher is that there will be nothing to justify a panic, and that, therefore, the panic will be easily arrested. Our Navy is pledged to attack and win. The loss of a few tramps carrying food or raw material in the first few days will not appreciably alter prices, and after the first few days it will have been decided whether our Navy is going to be supreme or not. If our Navy comes out best, then the trade routes are automatically secure.

The second head under which apprehension is felt is that throughout the war our merchant ships will be in danger from the volunteer cruisers which all other states have openly confessed they intend to employ. It is true that our representatives at the Conference were commissioned to try and get these merchant cruisers forbidden in the agreement. The representatives of the other states refused to agree; and the law will stand that the merchant ships of all states are permitted to carry guns in peace, and to hoist a battle flag when war breaks out. From this it is argued that our merchant shipping is at the mercy of any foreign tramp that carries a gun.

It would certainly have been simpler for us in a way if this agreement could have been carried according to our views. But other states again saw a chance of working on our fears, and have carried their point.

It can be shown, however, that these fears are groundless. If our enemies can arm their merchant ships, so can we, and it only requires a few figures to show how we compare them. Of ships over 5,000 tons we possess 610, Germany 193, Italy and Austria 38 and 19. Of ships capable of steaming 16 knots and over we possess 120, Germany 17, Italy and Austria 10 and 7. Of ships that can steam 20 knots and over we have 13, Germany 5, Italy and Austria none. These figures show that our ships ought to be able to look after themselves. But they are not even required to do that. The movements of all ships of any size, foreign and home, are known daily at Lloyds. If any enemy ship converts itself into a cruiser, the Admiralty undertake to send a real cruiser after it, to drive it to disarm in a neutral port.

It is argued further that this even will not stop them; and that they will wait awhile and reconvert themselves when opportunity offers. Our answer to this will be to hang the Captain and his crew, which in this squeamish age will probably deter any other holders of dormant commissions from not playing the game.

But putting aside details, let us consider the Convention as a whole. The first point is whether it is necessary to alter the Declaration of Paris or not. Many say that even that was a mistake, and maritime war should be conducted according to the lights and wishes of the belligerents. That is a sound view from the point of view of a state which is supreme at sea, and has no friends. It does not, unfortunately, apply now. No single state can fight the whole world now, we cannot ourselves, even if we were to wish to, which

we do not. When, therefore, there are neutrals to be considered, any rules are of value, that will help us to know what those neutrals will take in good part, and what they will resent.

The Declaration of Paris has become out of date. New commodities are carried on the sea which have become necessary to states. The opinions of men have become changed from seeing the conditions of modern naval fighting as shown by recent wars. The Conference in London has been called with the honest purpose of bringing things up to date.

The critics mostly make much of the minor points, and lose the broad point of view. They nearly all ignore the main factor in the whole question, which is the British Navy. This Navy is pledged to act offensively against the Navy of an enemy, and to procure a quick decision as to sea command.

When this command is established, then the fears of merchants and the people about their money and their food will be groundless and easily quieted.

Our delegates at the Conference had a hard task as the representatives of the state which stood to lose or gain the most. There was a deal of give and take, and it is a matter of congratulation that we have come so well out of it.

There have been concessions on minor points, but these are not of much account when weighed against the solid advantages gained.

THE TRAINING AND EMPLOYMENT OF PIONEERS.

BY COLONEL H. T. BROOKING, 61ST K. G. O. PIONEERS.

In the *Royal United Service Institute's Journal* for May 1910, appeared an article written by Colonel Buckland, R.E., called, "The Training of the R. E. Field Companies of a Division." To this article I am much indebted and it occurred to me that a paper on the training and employment of Pioneers might be of interest.

A Pioneer battalion is organised like other battalions of Indian infantry, but every Pioneer has to carry a serviceable tool. Each company has its proportion of pickaxes, *mamooties*, felling axes, hand axes, billhooks, and saws, carried by the men. In addition, a Pioneer battalion, on service, has a special allotment of 50 mules, to carry extra pickaxes, also shovels, crow and mining bars, big saws, drag ropes, explosives, a forge, and boxes of tools for carpenters and smiths. These 50 mules are apportioned so that each double company can be detached perfectly complete as regards its tools, explosives, etc. A Pioneer battalion has at its disposal in peace time a field works ground, workshops, and an annual grant of money to be expended on materials for training in pioneer work.

In the organisation of an Indian division, the divisional battalion is one of Pioneers. This, in addition to the special equipment, points to the fact that they will be largely employed with the field companies of Sappers and Miners, in making roads, railroads, and in other engineering duties. The Pioneer battalion can also be used as infantry; but as it is a divisional battalion its infantry duties would usually be in support of other troops.

In the Von Lobell report on military matters published in the *R. U. S. I. Journal* for March 1910, occurs the following as regards technical troops:—

"The Japanese were much better provided and organised. Nearly all the European armies, and certainly those of the Great Powers, are, as regards their Engineer services, comparatively worse provided than the Japanese, and than the Russians were towards the end of the late war. "We (Germans) shall not equal the Japanese, in this part of our organisation until we have two Engineer battalions of three companies in each Army Corps."

In an Indian division there are two field companies of Sappers and Miners and one battalion of Pioneers. This organisation provides more technical troops than the Japanese had in the late war.

A glance at the map of Asia will show how wise a provision this is. In the countries bordering on India, in any of which the Indian Army may be called on to fight, railways are non-existent and the roads are bad. This shows what will be most required of Pioneers when on service and appears to indicate that it is in their

pioneer, rather than in their infantry, duties that they should excel. Hence a Pioneer battalion must be one of organised and trained soldier labourers. Fit to work and fight, but being heavily equipped they cannot be expected to do the work of light infantry.

If the rôle of Pioneers is as stated above, a Pioneer battalion must be trained in both its infantry and pioneer duties. Nothing, as far as I know, is laid down as to how much time is to be devoted to each. Some definite orders on the subject would be of assistance to commanding officers of Pioneer battalions and to inspecting officers to whom it would be a guide as to the amount of perfection they can expect in each branch of a pioneer's duties. In the Sappers, I believe the rule is 6 hours for drill and manœuvre and 34 hours' sapper work in a week of 40 working hours. As the pioneer may be called on to do more infantry duties than a sapper and as his technical knowledge need not be so great, a fair division would be to devote half the time to each. If such is admitted, then a very high standard of efficiency in all round infantry work can hardly be expected. A high standard might be demanded in some portions of his infantry duties such as musketry, marching and defence, and a lower standard in such duties as outposts, scouting, etc., which duties would usually be carried out by cavalry and infantry.

The work that will be demanded of Pioneers on service will be road-making, work on railway construction, hasty entrenchments and making of head cover. Pioneers should be able to supplement the Sappers in the less technical engineering works. It would therefore seem unnecessary to devote much time to bridging and similar purely sapper work. If a bridge has to be made the Sappers would usually make it and the Pioneers would fell and drag the timber to the site. A Pioneer should be trained how to rapidly repair and make a bad road passable, to make rough huts for troops, to site and dig trenches at night, to extend silently at night over the trenches that have been sited and to get to work rapidly and quietly. A few men in each company should be trained as wire-cutters, who should be taught how to move at night up to entanglements, cut them and then lead the assaulting troops to that portion which has been cut. Men of Pioneer battalions might be practised in throwing hand grenades. In a defensive position a few men in pits, in the wire entanglement, armed with hand grenades would do much.

One double company in each Pioneer battalion has to be trained in railway work; this means training in the rapid preparation of formation, plate-laying, construction of temporary culverts, laying out of curves and the introduction of points and crossings. The best way to learn these duties is by taking contracts for railway construction and by getting employment on railway maintenance work which consists of the renewal of rails and sleepers that have worn out, rail drawing, packing the road, putting in diversions where necessary, and laying sidings in station yards that have to be enlarged; this latter work would include the introduction of points and crossings. It is not possible to continually obtain plate-laying work on sections

of new line, but it should often be possible to get a certain amount of railway maintenance work which, in a way, is better than plate-laying on a new line, since all work has to be done without interfering with traffic and needs careful working out. I think it would be of advantage to both railways and Pioneers if some agreement could be come to between the military and railway authorities ; that, if the latter will employ Pioneers on railway maintenance work, the former will promise that Pioneers' labour should be provided, in time of stress, such as floods and strikes. the railway company to pay the ordinary rates for labour at all times and not any enhanced rate in time of trouble. During heavy floods banks are often washed away, a large amount of labour is required to get traffic through as soon as possible ; railways have to employ any labour that they can get and may have to pay enhanced rates for such. Surely it would be of advantage to railway companies to feel that they have a call on a battalion of organised and disciplined labourers, and it does not seem to be asking much that they should, in return, agree to employ a pioneer double company on any railway maintenance work for which they have to obtain extra labour.

In and near cantonments, work suitable for training in digging can often be got, such as levelling of polo and hockey grounds, drains round the same, earthwork on a new piece of cantonment road, clearing away rock. Sometimes a new rifle range has to be made. Work can at times be got close to cantonments in the repairing of tank bunds that have burst. It is true that training in digging can be done on the field works ground, but by taking up contract work, much valuable knowledge can be gleaned which cannot be got any other way. For instance the taking up of contracts, however small, inculcates business methods, greater care is devoted to the distribution of labour and the outturn of work is more closely watched. It teaches officers and others to allot only the necessary number of men and no more. The men put in their best work because it is a money making business. It teaches economy in the use of tools and explosives, for, as these have to be paid for out of earnings, every one is more careful. Men would sooner keep their hands in at digging by being paid for it, than on the field works ground where they are not. Money so earned compensates the Pioneer for the extra work he has to do in learning and keeping up to the mark in his profession and encourages recruiting. When on contract work, military training need not be sacrificed, a certain amount of drill, etc., can always be done, and it is good for the men to give them a change periodically by doing a regimental manœuvre parade.

As regards the tactical employment of Pioneers, it must be remembered that the Pioneer battalion is a divisional unit, but it might at any time be attached to a brigade for some specific duty on completion of which it would return to its place in the division. If in peace time, it is incorporated as part of an infantry brigade, the tendency must be to use it generally as infantry. This may lead

to the inculcation of wrong principles. Take, as an instance, the replenishment of ammunition. If the Pioneer battalion forms part of an infantry brigade it is taught to draw its ammunition from the brigade ammunition column. Doing this in war time might lead to confusion. Therefore it seems advisable to train the battalion during peace in all its duties as it would have to perform them in war.

In the following paragraphs I have taken the various situations a division might be placed in and endeavoured to show the work the Pioneer battalion might be called on to do. These ideas are put forward for what they are worth and with no idea of laying down any hard and fast rules, but they are the outcome of a certain amount of thought on the question.

When a division is on the march, some Sappers or Pioneers would be detailed for the advanced guard. As the countries in which the Indian Army may be called on to operate are badly provided with roads, a strong body of technical troops should be detailed. If Pioneers are detailed for the advanced guard they should be in addition to the infantry and kept for their special work. The remainder of the Sappers and Pioneers should march at or near the head of the division (F.S.R., 27-2), though some Pioneers might with advantage be attached to the baggage guard in order to help the transport over bad places. Some Sapper and Pioneer officers should accompany the vanguard to note where the road requires repairing; these officers can work out the number of men required and one of them could then await the arrival of Sappers or Pioneers, whichever would be required, hand over his notes and rejoin the vanguard. The advantages in detailing the Pioneer battalion in preference to the Sapper companies with the advanced guard appear to be:—

- (a) The class of work required is not of a high technical standard and more suited to Pioneers.
- (b) Should the enemy be met with, the battalion could be used, if necessary, in support of the rest of the advanced guard, to dislodge the enemy.
- (c) If the enemy are met with in great strength, the divisional commander has a battalion at hand fully equipped with tools to put a position in a state of defence.

Before the division halts, an Engineer and a Pioneer officer should accompany the Staff officer who is to select the camp or bivouac. They can then arrange what working parties are required for opening out, and making roads to, the water-supply, and arrange means of ingress and egress to and from the camp. These officers should be ready with their plans by the time the Pioneers arrive so that the various duties can be allotted at once. Any strengthening of the outpost line that could not be carried out by the outpost troops themselves should devolve upon detachments from the Pioneers. If the division is halted for any length of time, the Pioneers should be occupied daily in making the road good as far forward as possible.

For this duty a special escort should be provided. Pioneers can defend themselves, but every Pioneer taken for piquet duty means so many less for work. If time is no object, then Pioneers could do their own piquetting.

In the attack, detachments from the Sapper field companies or Pioneer battalion will be attached to the brigades in the front line of the attack. They will clear away obstacles and assist in putting captured localities in a state of defence. Sappers or Pioneers will be required for improving existing communication or in making others for the passage of troops and guns. It seems preferable to use the Sapper companies in the above duties, since by keeping the Pioneer battalion in hand the divisional commander has a complete battalion for use as infantry in support of other troops: should this not be necessary, he has a fresh battalion ready to set to work with its tools to make good the captured position. In peace manœuvres Sapper companies and Pioneers should be practised in going forward in close support of the fighting troops so that, while not interfering with these, they would be at hand to carry out their legitimate work.

In the defence, the Pioneer battalion would be placed under the orders of the C. R. E. who would issue orders as to the work he wishes the battalion to carry out. On completion of the work the Pioneers would usually join the general reserve. Pioneer officers could be detailed to assist the Engineer officers in organising and supervising any civil labour that may be available. It may be necessary to fortify and hold some outlying portion of the position with a battalion; the Pioneer battalion might well be detailed for this duty. Such a course obviates the necessity of breaking up a brigade of infantry.

In night operations necessitating attacks on entrenched positions, selected men from the Sappers or Pioneers will be sent forward to cut a way through wire entanglement or other obstacle. These men will then return and lead the infantry destined for the assault to the places where a way has been cleared. While the wire-cutting is proceeding the brigade that is to assault the position will have approached in its three lines, as close as possible. F. S. R. 137 (7) says:—

“Any tools or special appliances required to place the objective in a state of defence should accompany the latter (*i.e.*, third

The third line, therefore, seems to be clearly the place for the line).”

Pioneer battalion. The Pioneer's tools are on his back so that no equipment tools need accompany him. The battalion would move forward close behind the third line. On reaching the captured position the Pioneer battalion should extend at once, site and make the trenches. Trenches are difficult to site at night, but it will have to be done, and practice, during peace, in this important branch of pioneer training will do a great deal. Should it not be possible to capture the position that night, the Pioneers could choose some

intermediate position and make good the ground gained, preparatory to further advance the next day or night. F. S. R. 135 says:—

"It is therefore advisable to time the delivery of the assault so that the attackers may have two or three hours of darkness to prepare and organise their defence."

Hence the necessity of teaching all troops, and more especially Pioneers, to site and dig trenches at night.

In a retirement, in mountain warfare, Pioneers would be required with the advanced guard to do all that is possible to make the road good, so that the rear guard may not be delayed by the transport getting blocked. As strong a body of Pioneers as possible should be detailed for this duty. In a general retreat a very strong body of Pioneers will be wanted at the rallying position to put it in a state of defence. This seems to indicate that the position of Pioneers in retirements and retreats should be with the advanced guard. It may sometimes be advisable to send the Pioneers a day or two in advance of other troops. If the retirement, in mountain warfare, is to take some days, as was the case in the retirement down the Bara and Mastura valleys in the Tirah campaign, the Pioneer battalion should, as soon as possible after its arrival in camp, be sent out to reconnoitre the road on the line of retirement and do as much work on it as it can that day. This is quite possible if it is sent with the advanced guard. After a few hours' rest it can continue doing some work on the road along which the retirement is proceeding. This will facilitate the commencement of a march in hilly country or where road space is cramped.

If Pioneer battalions should be allotted to a line of communication a battalion would be split up in companies or double companies and stationed at the various stages. Their duties will be to see to and make the necessary defences for the post, to assist in making defences for the fixed piquet posts, and to keep the main road in thorough order. Pioneers should not form part of the garrison of the post or be detailed as escort to convoys; it is thought they should be under the orders of the Inspector-General of Communications and not under the commander of the line of communication defences. If they do their pioneer work properly they will have as much as they can do, they cannot both repair a road and do convoy duty as well. While some parties of Pioneers should accompany each convoy to give assistance at bad places, other parties should be continually at work along the road, mending bad places. The Pioneer officers should be continually up and down their section of the line seeing what is necessary. They could also be used in supervising any civil labour that was employed. The celerity of the passage of munitions of war depends mainly on the condition of the road. However good the transport may be it will soon go to pieces on a bad road. Bad transport on a good road will last longer than good transport on a bad road. A pioneer battalion might easily be spread over 40 to 80 miles of the line of communications. Pioneers would always be near at hand to assist in the defence of a post or convoy.

During the late war in Manchuria the Japanese used to send forward infantry in support of their cavalry. If this principle is going to be followed in future wars, a Pioneer battalion would be a suitable one to send ; it is true that they are heavily weighted, but if taught to march they can get along a road at a good rate. Being equipped as they are they could very soon make a strong position on to which the cavalry could fall back and which would prove of use on the arrival of the rest of the force.

It may be necessary to detail Sappers or Pioneers to accompany the escort to guns owing to badness of road, or to clear a passage. On completion of the work they should rejoin the division. They should never be detailed as *the* escort to guns. The Pioneer battalion might be detailed to put the rail-head in a state of defence while the division continues its advance. If a division had to do a flank march, its Pioneer battalion might be sent to entrench and hold some dangerous point in order to cover the division.

My best thanks are due to Colonel Buckland, R.E., A.D.C., for the assistance I have had from his article, and I trust he will excuse the free use I have made of it, but the last paragraph of his article encouraged me to do so.

THE MORAL OF THE RUSSIAN ARMY DURING THE WAR WITH JAPAN.

PRECIS AND TRANSLATION FROM THE RUSSIAN, BY CAPTAIN G. L. BLAIR, 36TH SIKHS.

A work on the above subject * has recently been published under the auspices of the well known Russian military society, the *Obozhestvo Revnitelnie Voeniwikh Znanie*, which has a special section to deal with military psychology. It is written by Colonel Drujinin, an officer of the Russian General Staff, who volunteered for service in Manchuria, and was there employed as a special service officer: in that capacity he commanded forces varying in size from small reconnoitring detachments to an infantry brigade.

The following extracts, although they are far from doing justice to this valuable book, will, it is hoped, be sufficient to give some idea of the author's views on moral, formed after personal experience of a great modern campaign.

With troops which are awaiting their first battle it is of the utmost importance that the staff-work should be good: if everything runs smoothly, a feeling of confidence in the leadership of the commanders is rapidly established. Troops which have not yet fought are very unfavourably affected by defensive dispositions; their adoption shows officers and men all too clearly that they are about to be called on to face an enemy of superior strength. Their nerves become highly strung, false reports are common, and the news that the enemy is advancing frequently produces a feeling of panic.

The feelings most prominent in the minds of officers and men ordered to reconnoitre were the following:—

- (1) The wish not to lose the road leading to the enemy.
- (2) The wish to find the enemy.
- (3) The fear of coming unexpectedly under fire, coupled with the fear of falling into the enemy's hands; or, worse still, into the hands of the Chinese inhabitants, if wounded.
- (4) The fear of being cut off.
- (5) The fear of losing the return road.

The harmful feelings, the three last-mentioned, were often stronger than the first two. The strain on the moral qualities is far greater in the case of scouts than with large bodies of troops, who are supported by the presence of their comrades and directly under the control of their officers. Only a high personal sense of duty "will make scouts overcome the harmful feelings which exist in

* Izlyelovanie dushevnavo sostoyaniya voinov v raznwickh sluchayakh boevoi obstanovki po opwitu russko-yaponskoi voinwi, 1904-05. K. Drujinin, St. Petersburg, 1910.

their minds, and force them to move towards the enemy and to search him out at all costs, without reckoning or even thinking of the danger to themselves." Very few have by nature the qualities required, *viz.*, contempt for danger and the power to overcome all obstacles. "It is useless to imagine that sportsmen, racing men, and travellers are of special value for reconnaissance: although the fact that they are accustomed to activities of this description makes reconnoitring easier for them, yet in the last war I noticed that the distinguished sportsmen of peace turned out to be simply unfit for reconnoitring and markedly avoided such dangerous work" Nothing can replace a proper training in these duties, which constitute by far the most important part of the work of modern cavalry.

The complete failure of the cavalry was due to the following causes. The best cavalry leaders were taken away from that arm and placed in command of infantry units* or of bodies of all arms, and the officers who actually led the cavalry proved quite unequal to the task: the two Dragoon regiments and the bodies of Cossacks of the 2nd Levy sent to Manchuria were insufficiently trained: and considering the mountainous character of the theatre of war, the number of cavalry employed was really too great.

The officers with the cavalry in the field were of three classes: (1) Dragoon officers (both of guard and line regiments) including those attached to Cossack regiments; (2) Cossack officers; and (3) Reserve officers. The first class was the best both in moral qualities and in professional ability. These officers, many of whom had volunteered for active service, alone sustained the honour of the Russian cavalry. The Reserve officers were often pure adventurers who only wished to draw large allowances, to avoid reconnoitring duties, and to get appointments on the line of communications or on the staff.

In war, it is far easier to raise the *moral* of the men than that of the officers, because the former are softer, fresher, material and think in masses. "To re-knead the *moral* of the officer body is incomparably more difficult, because every member of it is far more individualised."

"If troops have been allotted an offensive rôle and then receive orders to form the rearguard for a retreat, *i.e.*, for defensive operations, their moral condition, either at once or after a certain time, is always sharply depressed and falls with bewildering rapidity." The fluctuations in the *moral* of the 3rd Siberian Army Corps during the battle of Liao-Yang are an example. This army corps had, as the Eastern Detachment, suffered a series of reverses, beginning with the Yalu, but during the earlier stages of the battle of Liao-Yang it had been uniformly successful in repelling Japanese assaults with small loss to itself. Officers and men considered that their Army Corps had distinguished itself above all others (although this honour in reality belonged to the 1st Siberian

* In the Russian Army the highest infantry unit was the division of 16 or 17 battalions.

Army Corps), and on September 1st and 2nd they had no fighting. Their *moral* therefore stood high on the latter date.

This Army Corps was detailed to take part in the great counter-stroke. After crossing the Tai-Tzu it found itself, at a point two miles S.-W. of Lo-Ta-Tai,^{*} already in unmapped country and reduced to marching by compass. On reaching the village just mentioned, the column "at first continued its movement, but it was afterwards decided that the Army Corps might expose its position and it was halted. One regiment had, however, already descended on the enemy's side of the hills and had to be brought back. We were in sight of, and not more than 2 to 2½ miles from, Manju-Yama! I thought our troops were now carrying on the action with an extreme want of energy and determination: our fresh 3rd Siberian Army Corps, full of a sense of victory, had just come up: consequently, if it was necessary to develop our success, why were we doing nothing, why did we stand fast all yesterday and do the same now? The battle, or rather the preparations for attacking Manju-Yama, was spread before us, as it were on the palm of one's hand: the Army Commander himself was watching the operations, but no control on his part was observable, but rather a wish not to interfere. I rode away from the point of observation with a heavy foreboding that some disaster would occur."

"The Army Corps marched rather late the next morning and was much hampered in its advance by transport and hospitals, which filled the road, and by the *kao-liang*. The Army Corps Commander compelled the latter to clear the road for the troops, and some useless attempts were made to trample down the *kao-liang* with the idea of enabling the column to advance on a broader front. At last the army corps was halted."

"Very shortly afterwards Colonel of the General Staff, Dragomirov, of the Army Staff, rode up and gave these directions: "the Army Commander has ordered all troops, whether on this bank of the Tai-Tzu or here, to retreat."

"If only it had been possible, to photograph the expression of all those present, psychology would certainly have gained some very interesting and valuable material. We were, however, far from being then convinced that our great battle was really finally lost, although Dragomirov's words told us in the most effective way of our defeat. At once we all overwhelmed the Colonel who had brought the fatal news with questions: "How? Why? Why?" He answered (I remember every word and they still ring in my ears). "Yesterday, during the day, Orlov's detachment met with a misfortune at the Yentai mines and in the evening there was a tactical misfortune at Manju-Yama . . . and so we have to retire . . . however, the Army Commander is coming up himself and will explain everything to you. I must go to the 1st Army Corps."

^{*} See Official History of the Russo-Japanese War, Part 4, Map 4/5.

[†] The "Nyejinakie hill" of the original has been altered to the better known name throughout.

"General Kuropatkin rode up to us and began to talk to General Ivanov. Of this conversation I clearly remember the following phrase: *que faire?* we must retire to Mukden and concentrate still more there." "What a dreadful moment that was to live through! Words cannot express it I understood then, as I understand now, that it was we ourselves who acknowledged ourselves beaten, that we had not the will or the determination to continue the battle. It is now proved by documents that on the right bank of the Tai-Tzu we were so superior in strength to the enemy, who were worn out after the preceding battles and had expended all their ammunition, that perhaps the decisive attack of the 3rd Siberian Army Corps alone, ready as it was to advance at once on the Yentai mines, would have led us to complete victory.

"The very fact of the issue of the unexpected order to retire, that is, the announcement to troops as yet undefeated that the battle was lost, was in the highest degree incorrect and shows a complete failure to understand the psychology of fighting men, because the result was their immediate demoralisation. One must have gone through, as we went through, that dreadful moment to form a correct impression of it. Every one 'gave up.' All wish to fight vanished: we all began to consider how we could retreat the most rapidly. The feeling in the ranks fell to such an extent that, if the Japanese had been in a condition to act with any energy at all, our retreat might have turned into something like the disorder of Mukden and have brought about a like catastrophe. But, fortunately, our opponent was unable to continue the struggle; continuous fighting for ten days had exhausted his strength, his artillery ammunition had come to an end, and he had too few cavalry, that arm so indispensable for developing a success and for pursuit. Our retreat was therefore entirely unhindered, but all the stations of the Eastern Chinese railway were abandoned by us without a shot being fired."

"During Kuropatkin's conversation with Ivanov the staffs of the two generals mingled, and an officer of the Army Staff, formerly a professor at the Staff College, explained the true inwardness of the C.-in-C's manœuvres concluding with the following remarks: "Liao-Yang reminds me of Gravelotte (in the 1870 campaign) with this difference only, that Kuropatkin did not make Bazaine's mistake, but moved his reserve in time." An officer at once said. "Oh! You already compare him with Bazaine, do you? I congratulate Kuropatkin." The painful impression produced by this unfortunate comparison was very evident."

After the order for retreat had been received, "no one seemed to know clearly and definitely what had to be done. Only in this way can one explain the chaos which ensued in the dispositions of the Army Corps to which I had the honour to belong. We were ordered to defend something somewhere and I heard remarks of this kind: "Why is it we who have the task of being rearguard?" "We can't occupy this position, it is not safe." . . . "Impossible dispositions." . . . A false report that a brigade of Japanese with some

artillery had reached the rear of the Army Corps came in from Gen Mishchenko and added to the confusion. Owing to the general dislike to covering the retreat of others, the retreat could hardly have been so lucky if the Japanese had pursued." I say 'lucky,' deliberately, despite the fact that in Russia and abroad it has been considered that the retreat from Liao-Yang was executed in admirable order. I affirm that there was no order at all: columns marched on roads which had not been allotted to them, out-distancing and abandoning their transport, and all endeavoured to get away as fast as possible without any thought for those who remained in rear or on the flank. The retreat from Liao-Yang differs from the retreat from Mukden, but only owing to circumstances beyond the control of the army and its leaders, *viz.*, that the Japanese on September 3rd—6th did not make any pursuit, and that the roads, owing to rain, were too bad to allow of it: when horses sink to the belly, infantry to the knee, and carts to the axle, it is difficult to carry out movements.

From the example furnished by the retreats from Liao-Yang and from Mukden we can draw the following very instructive conclusions as regards the psychology of masses: "The leaders of to-day must know and understand that the moral force of troops, under modern conditions of long-drawn-out and obstinately contested battles, can sustain any effort that can usefully be demanded of it. This effort, however, must have a limit, but it can be sustained for a very considerable period as long as there is a hope of victory and the armies are face to face with their enemy. To prolong a general engagement, as was done at Mukden, and then to acknowledge one's defeat and to order the men to turn their backs on the enemy is too dangerous, or more correctly, is quite impossible. If it is done, one can hardly count on the orders to fight and to cover the retirement being executed. Such orders are received and carried out with too little goodwill: they are indeed, in most cases, not carried out at all. If one body begins to retire, even although its retirement be really inevitable and in accordance with orders received or under pressure which cannot be withstood, then its neighbouring rivals in retreat will go off, even if no enemy is in front of them. Such a thing as assisting others on one's own initiative can hardly be spoken of: action of this kind is a rare exception. The mass begins to break up with extraordinary rapidity and the personal example of the bravest leaders is of no assistance as it acts irregularly or only affects a few individuals in the immediate vicinity, who can see and hear their chief. If the Japanese had possessed sufficiently good cavalry, the Russian army would never have assembled on the positions of Sipangai."

Colonel Drujinin considers that the decision to advance, which resulted in the battle of the Shaho, was a mistake. "The sharp drop in the *moral* of the troops caused by the order to retire naturally continued while the order was being executed, but it was clear that, as the troops moved farther away from the enemy, who showed no signs of pursuing, they began to regain their calm and in

a few days the majority of the army was convinced that it was out of danger : the moral barometer rose and became settled, so that there was no question of panic. All the same, it was impossible to expect a further rise, which was so necessary to secure victory over the enemy. This moment in the *moral* is very interesting, and I think I am not mistaken in saying that it was precisely at that moment that we lost the whole campaign : consequently we can determine psychologically who was responsible for its loss. " If the commander had reckoned with the psychology of the army, he would not have commenced the advance on October 4th : it promised little success."

On the line of march, if an officer's brain is continually occupied in considering the various problems of his work, there is little chance of human weakness getting the upper hand. The majority of officers, however, owing to mental idleness born of insufficient brain-work in peace, marched or rode along taking no notice of the country, not troubling to read the map, and neglecting the necessary measures of precaution. Habits of this description led to even high commanders allowing their minds to dwell on their own tactical deficiencies, their heavy responsibilities, and their personal danger. These feelings were, of course, most powerful before an officer's first battle.

The practice exists of a staff officer reading aloud to the officer in command all reports received on the line of march. During the war, the information they contained spread rapidly through the staff and, from the orderlies, to the troops, producing if not unfavourable very unfortunate effects. Arrangements should be made that no information, except what it is desired to communicate, can reach the troops.

An order to advance is, as a rule, sufficient of itself to raise the *moral* of the troops, because the issue of such an order proves to them that a prospect of victory exists. This is true even in the case of troops which have previously suffered defeat, and if the order to advance is received after a successful defence, an enormous rise in *moral* can be expected. In such conditions troops will, despite want of food and rest, make extraordinary physical exertions. Should the order be received after a retirement, all depends on the character of the latter. For example, if an advanced post, after successfully opposing the enemy is compelled to retire before superior force and draws the enemy under the fire of the main position, where he is checked, the troops will be filled with an impression of their own strength and skill, their *moral* will remain high, and they will be ready for an advance. If, however, a force is obliged to retire with loss and, above all, if it delivers an assault and is repulsed, orders to advance will be ill-received, especially if the casualties among the officers have been heavy.

The news of the success of other bodies of troops, even if they are operating at a distance, always has a good effect, and for this

reason it is sometimes advisable to invent such successes for the encouragement of the men.*

The good moral effect of forward movement, even under fire, was very noticeable.

On August 26th† Colonel Drujinin commanded a column consisting of 3 *sotnias* of Cossacks and 2 companies of the 9th Eastern Siberian Regiment. This force was between Colonel Martinov's and Major-General Stolitz'a detachments and acted against the left flank of the brigade of the Japanese Guards commanded by General Asada. During the Russian counter-attack Colonel Drujinin ordered a half-company under a serjeant-major to deliver a frontal attack on a body of Japanese, "not more than a company and probably less," which was occupying a ridge and was already threatened in flank. The serjeant-major "at once gave the order: 'Up, double, follow me,' and dashed down our ridge: after him ran the whole half-company like one man. It seemed to me that the enemy's fire, as it were, died down, as the whistle of the bullets only increased after a few minutes. I think that the sudden rising up and appearance of men determined to assault produced a strong impression on the Japanese and that they either ceased firing or began to send their bullets too high. In any case, the riflemen ran down without loss, and I saw men fall only as they climbed the hill held by the Japanese. The movement was executed so sharply and uninteruptedly, that it seemed that the riflemen sprang into the trench at one bound. The Japanese did not wait for their bayonets and, in the full sense of the word, fled."

Colonel Drujinin noticed few instances of cowardice among troops under his command: when they occurred he met them "with the most decisive measures." On one occasion a *sotnia* of Cossacks, halted, and was fired on by its own side. The men rushed to their horses and mounted without orders: some horses were even allowed to escape in the confusion. Colonel Drujinin at once gave the order to ride in the direction of the shots: it was promptly obeyed, and discipline was restored. The next day this *sotnia* fought excellently. A week after, it passed out of his command, but three years later the men remembered Colonel Drujinin well enough to assist him in quelling an incipient mutiny among other Cossacks.

Nothing is worse for *moral* than allowing cases of cowardice to go unpunished.

"Usually, unhappily, during long-drawn-out battles a large number of fugitives, consisting not only of soldiers but of officers as well, collected in rear of army corps and armies, especially at great centres on the line of communications, such as Liao-Yang and Mukden. I am convinced that this happened because no measures whatever were taken against such scandals. It was only necessary to shoot

* On the Japanese side, the men who fought at Liao-Yang had been told of the failure of the first general assault on Port Arthur. This was done with the idea that they would be eager to avenge their comrades' repulse.

† See Official Account, Part 4, page 22 and Map 4/1.

a few men and the wish to slip away to the rear, out of the battle, would probably have vanished."

The sound of firing, when the bullets and shells were not actually falling among the men, sometimes had an encouraging effect if the *moral* of the troops was good. Once, however, they were shaken it was very different. During the retreat from Liao-Yang one army corps lost its way on a night march. Suddenly firing was heard : this was enough to cause a regular panic in the Army Corps Staff. The only two members of it who preserved their presence of mind were the G. O. C. and a captain of the General Staff : the latter loudly declared that it was not firing at all, but the noise of carts on a stony road ! The orderlies and the men of the escort remained cooler than the officers on this occasion.

Moral is better in the mountains than in the plains for many reasons: the scenery has its effect and the waverer sees many shells bursting harmlessly below him, while on the flat every shell seems dangerous. As regards rifle bullets, the impression is even stronger : "a large number strike below one's position and others fly high over head, while in the plains a continuous deluge of bullets seems to be pouring down. In the hills, too, every man feels that he is in some degree covered, and the officers that they have sheltered their men : it is easier to direct the fight and to observe it : everything is more easily understood. In the plains, the fighting is more trying, more monotonous, and therefore exhausts one more quickly, especially if wind or duststorms are blowing : one feels more certainty that all is going correctly, that everyone is in his place, and one is less afraid of the unexpected."

The war "only confirmed the truth that the energetic participation of the artillery in the fight encourages and supports the *moral* of the other troops and, conversely, if its action is slow, unskilful, and, above all, timid, such action injures their *moral*. A battery which shows itself courageous in action, becomes a favourite ; the men drag it over difficult roads with pleasure, defend it, and will not abandon it under the enemy's attack. Troops soon estimate the true worth of a battery which is 'bad' in action and attach no value to it. After the sad experience of the Yalu, when in the first battle some guns were abandoned to the enemy, and also after the destruction by the Japanese fire of the batteries at Telissu, which were so unskillfully exposed, we at once fell into two very harmful and mistaken extremes, *viz.*, either we had a panic dread of keeping the guns in their positions and withdrew them just at the moment when their co-operation with the infantry was most necessary, or we never put the artillery into the battle at all but posted it too far to the rear and in too sheltered positions."

In some cases commanders left their batteries behind on the excuse either that assisting them on bad roads would exhaust the infantry or, being afraid of the responsibility of losing guns, that their presence would hamper retirement, in case of a disaster."

The premature withdrawal of artillery produced an extremely bad moral effect. The sound of guns retiring at night was a sure sign that the battle was lost and every man understood its meaning. The army forgot that the loss of guns which have done their duty is no disgrace. Far more disgraceful is it to withdraw artillery before it is necessary to do so, thereby breaking the spirit of resistance of the troops.

For many reasons the prolonged pauses between great battles produced very bad effects. The conditions of life on active service wearied the troops, whose minds were free to dwell on their discomforts; the impression that the situation was not clearly understood was deepened; and time was given in which to think over past defeats and to criticise the leading of the army. Minor enterprises, on which the Japanese wasted no time, exhausted the troops: the Russian leaders undertook them in the hope of producing an impression of energy.

"Flanking movements, or rather the fear of being outflanked, were a disease with most of our leaders: they were ready, firstly always to see themselves surrounded on all sides, and, secondly, on the first news of the appearance of a few Japanese anywhere, far away on the flanks, they hastened to abandon the most impregnable positions. These occurrences were the result of the fact that the abandonment of sections of defence without offering sufficient resistance to the enemy was not followed by punishment in our army. Only a few self-reliant commanders continued to fight even when almost surrounded. On such men the receipt of information that turning and flanking movements were in progress had its normal effect, that is, it made them take the proper measures for meeting such movements, and caused them to continue the fight. Of course, a visible turning movement by the enemy against a defended position is a sign of great danger, shakes one's trust in victory, and consequently lowers *moral*, but a true leader will always find means to meet these feelings. Flanking or turning movements which are not yet visible, but still threatening, can be kept secret, until the proper time, from the troops in action, if one has not complete confidence in them: this is a good method. As regards the actual appearance of the enemy in the rear, it is bad even for victorious troops, and tactics demand that we should avoid such an unfavourable turn to the action. It is clear that only good troops, led by commanders of real worth, will be able to keep their balance of mind in such circumstances. The presence of the enemy in the rear, as yet unseen and unfelt, should certainly be concealed until the commander has come to a final decision, e.g., if he hopes for the arrival of troops of his own, he can wait for them: if he knows that he is doomed to be sacrificed, as in a rearguard action undertaken to save other troops; it is best to keep his command in ignorance of its probable destruction until the last phase of the action."

Efforts were certainly made to appeal to the religious feelings of the Russian soldier. Many priests accompanied the troops, Kuropatkin had a railway carriage fitted up as a church, and an ikon (sacred picture) used by Kutsuzov at the battle of the Borodino was paraded,

before the line at Mukden. As far as outward observances went the importance of religion appeared to be realised. "However, I must admit that a religious frame of mind did not exist in the army: services were held and religious ceremonies carried out, but there was no 'conscious aspiration' towards God in such moments of trial as battle. This remark applies in particular to the higher leaders and to the officers, and, in a less degree, to the lower ranks. Our leaders and officers generally forgot what a vast power, what a motive, and what an instrument for acting on the *moral* of the troops they had in their hands owing to the fact that the majority of our soldiers believe in God. We were, too, waging war with heathens and in consequence one method of inciting the men to destroy the enemy was to remind them of this fact.* I personally made use of religion to excite the feelings of the men on every suitable occasion and always with success. I think that even a free-thinking officer, who had to deal with such material as our men were, ought to have made use of their responsiveness to the words and teaching of religion. I repeat that this was continually neglected, not only by the greater part, but by the whole of our army and got no farther than ceremonies and outward observances."

The efforts made to appeal to the feeling of patriotism were also too formal. The army resented its defeats as such, but was far from looking on them as injuries inflicted on Russia. On the other side "the army has the right to say that the fatherland itself, at the end of the war, was ungrateful, did not properly value its sacrifices, and was unwilling to supply it with the most necessary means for attaining success in the field." It was, as a rule, the non-Russian elements of society which were guilty in these respects. "I cannot accuse the true Russian citizens of insufficient sympathy for the army while the war was going on, but rather I blame them for the extraordinary indulgence they showed for its failures. Society knows who are responsible for our defeats, it knows who failed to carry out their duty to the country; nevertheless there has been no display of national indignation at their actions. Nor is that all: they have been treated in the same way as the real heroes. The latter are too little reverenced, not only the living, about whom there may be some doubt, but even such as have given their lives for their country like Kondratenko."

Rewards and decorations were given far too lavishly, and in such indiscriminate fashion that many officers who had done nothing, received them, thanks to influence in high places. Some officers, their Cross of St. George once won, thought only of escaping with a whole skin and an unshaken reputation from the front. The lower ranks were rewarded in the same unequal and haphazard way. The issue of rewards to the unworthy has a most discouraging effect on good men.

* In the early months of 1904 the streets of Moscow were flooded with broad sheets with pictures of Holy Russia going out to war against the yellow infidels. These pictures, and the doggerel verse which accompanied them, could certainly not be accused of failing to appeal to racial and religious sentiment.—G.L.B.

CRECY AND AGINCOURT: A STUDY OF THE TWO CAMPAIGNS.

BY COLONEL W. D. THOMSON.

A summer holiday spent in Picardy allowed of a pilgrimage to the two famous, but little visited, battlefields of Crecy and Agincourt, which lie about twenty miles from each other, and are both very easily reached from most of the seaside resorts between Calais and the mouth of the Somme. These battlefields are most satisfactory from the point of view of the student of military history, because they are amongst the few in which the *terrain* is, at this day, exactly the same as it was on the day the battles were fought; and from the point of view of the ordinary visitor, because the battles were fought on such small spaces of ground, that in each case the whole field can be seen at a glance, and the description given in history followed without any particular technical knowledge being required.

The first question which naturally arises is, "How was it that two such important battles, occurring at an interval of about seventy years, came to be fought out by a foreign invader in practically the same part of the country?" The answer is that both King Edward III and King Henry V had the same objective, which they pursued regardless of all strategical considerations. They were neither of them strategists, few leaders were in those days; but the strategy of the French was better in both these campaigns than that of the English, though their tactics were so faulty that the English kings were allowed to retrieve their strategical errors by their tactical successes.

The north of France was, in those days, an easy district to raid but a difficult one to occupy. It was an open country studded with strong fortified towns, each of which required a long and wearing siege to capture. If these sieges were undertaken, the besieging army was worn out by the time a couple of towns had been taken; if they were not undertaken, the towns would have to be masked. For this the invaders had not sufficient force. If the towns were not masked, the campaign resolved itself into a mere raid in force, which must, as the raiders penetrated deeper into the enemy's country, end in their destruction, for they had no line of communications, and no reinforcements.

Both Edward and Henry committed themselves to an invasion of France by the mouth of the Seine. Edward, being a hopelessly rash general, raided up to Paris; only to find that the French armies were closing round him, and that he was cut off from his base at the mouth of the Seine. Calais at that time did not belong to England, but it was the last French fortress on the Flemish border; and, if

Edward could reach Calais, he could get into touch with his Flemish allies. He could also take measures against the town itself, which had for long years been the head-quarters of the French privateers who had habitually preyed on English commerce, and had carried out at all times a private and unofficial war with the Cinque Ports. Moreover during a considerable part of his march he would be passing through his grandmother's inheritance of Ponthieu, where the people, though not declared on his side, would be undoubtedly favourably inclined towards him; for in those days provincial and feudal feeling was strong in France, and national feeling weak. If he could manage to cross the Somme* he would be in Ponthieu and would have nearly cleared the flank of the great French army which was being collected on both banks of the upper waters of that river, and which hoped to push him entirely off the line to his base, shoulder him away from his allies, and force him into a position with his back to the sea. It was therefore the pressing necessity of reaching, first Ponthieu, and next the Flemish border, that forced Edward to retreat from Paris to the Somme, and to make repeated efforts to cross that river. How fortune enabled him to do this, will be told later on.

When in 1415 Henry V invaded France, also by the mouth of the Seine, he intended to begin by capturing Harfleur (now Havre), the strong fortress at the mouth of the river, with the idea of turning it into a second Calais, which latter place had been an English possession since its capture after Crécy by Edward III. In this he was successful. He turned the French out of the town, and settled large numbers of English families in it. He then found himself with a small army in a hostile country, in which he was master of nothing but Calais and Harfleur. Winter was coming on; Harfleur was not nearly so defensible as Calais, and there was a wide stretch of sea between him and the English shore. As his army was not strong enough to undertake any more sieges, it was evident that his alternatives were (i) to go back to England, (ii) to stay in Harfleur for the winter, practically besieged by the fast gathering French armies, (iii) to march to Calais, trailing his coat all the way, in the hope that he might be attacked *en route*; for, with the memories of Crécy and Poitiers behind him, he was confident of beating any force which the French might bring against him. This last was a very dangerous game to play, but Henry decided to try it, and the result showed that he was right. He seems to have calculated that if he could force an action, his small army might be depended on to beat any force he might meet, and also that his enemies might be counted on to make every possible tactical, and probably every strategical, mistake. In these calculations he was justified.

It will be seen that the ultimate objective of both Edward and Henry was Calais, and the intermediate objective, the crossing of the Somme, before that river was made impassable throughout its

* See map facing p. 285.

whole length by the assembling French armies. It will also be seen that the almost inevitable result of an advance with these objectives would be a collision somewhere between the Somme, if the river was successfully crossed, and Calais, either close to the sea, or rather further inland, according to whether the Somme was crossed near its mouth, as Edward crossed it, or near its source, as Henry crossed it. This is the explanation of how the two battles came to be fought so near the same place.

We will now follow the march of the English army on each occasion, and see how it crossed the Somme. Edward, who had raided up to Paris, marched thence straight north, across what is now the Department of the Oise, to the left bank of the Somme; and finding all the crossings guarded, marched down the left bank to opposite Abbeville, where he was again foiled, and stood in imminent danger of being driven by St. Valery into the sands at the mouth of the river, where he must have been hemmed in and captured. But the local feeling of Ponthieu stood him in good stead, and the peasants showed him a practically unknown tide-swept passage below Abbeville, called the "Blanche Taque," where a band of chalk crops up right across the sands of the estuary, and makes at certain hours a ford, firm under foot, though very deep and dangerous at best. The "Blanche Taque" seems to have been unknown to the French, and Edward, as the chronicler says "took that water of the Somme, where never man passed before without loss." He chased the French light troops back to Abbeville, and marched nearly round the flank of their army to Crecy-en-Ponthieu, where he elected to stand and fight it out at the source of the little river, or brook, called the Maye, about ten miles from the sea, and about sixty miles due south of Calais.

When Edward's great-grandson Henry V started for Calais sixty-nine years afterwards, he took with him 2,000 men-at-arms and 5,000 archers, and headed slightly north of east for the mouth of the Somme. He had evidently studied his great-grandfather's campaign, for he marched straight to the "Blanche Taque," which, however, he found strongly held by Picard levies, and quite unforceable. This was a very serious rebuff. From Harfleur to Calais was a long 200 miles, and no part of the country through which he had to pass was now friendly. He had only taken eight days' provisions, evidently hoping to pass the Somme unopposed, to fight beyond it, and having fought and won, to march on Calais living on the country.* The guarding of the Somme upset all his plans. It was necessary to reverse Edward III's route, and to march up the left bank of the river. On the 13th October the army began toiling along the muddy bank, finding ford after ford strongly guarded, till on the seventh day they were able to cross at Bethancourt, near the sources of the river, and turned north *via* Fruges towards Calais. The army

* It is noteworthy that Henry's archers, as well as his men-at-arms, were all mounted, being the first avowedly mounted infantry in the annals of the British army.

was by this time on quarter rations, there had been unceasing rain and at least twenty-five miles a day had been covered, ever since the start from Harfleur. The food was practically exhausted, the whole force was worn out with hard marching, starvation, and exposure. Calais was still 100 miles off by road. It was only necessary for the French to avoid a combat for three more days, while harassing the front and flanks of the English so as to prevent them marching more than ten miles a day, in order to ensure their total defeat without fighting. This was apparently the intention of the Constable d'Albret, the Constable of France, who was the nominal commander; but he had with him in camp the Duke of Orleans and several other royal dukes, who constantly over-ruled him and took the command out of his hands. On the day Henry crossed the Somme a herald from the Duke of Orleans rode into the English camp, saying that the Duke, with the Ban and the Arriere Ban of France, was close by, and would fight Henry before Calais was reached. This was good news for the King; in fact it was his only chance of salvation. Sending a suitably provocative reply, Henry marched from the Somme on the 20th October, and on the 23rd crossed the little river Ternoise at Blauby. A long and toilsome march up a very steep "brac" brought his advance guard to the village of Maisondelles. From this place the road ran across three-quarters of a mile of undulating clayey ploughland to the sister-village of Agincourt, or as it was, and is, called by its inhabitants Azincourt. The land between Maisondelles and Agincourt had been recently ploughed and cross-ploughed, and the rain had fallen unceasingly for ten days. The road itself was passable only with difficulty, and the ploughland on either side had resolved itself into a quagmire.

When Henry's army reached the north side of Maisondelles shortly before dark, the French host, "swarming like locusts," was seen, not on the flank as at Blauby, but square across the road to Calais, which then ran past Agincourt. It was evident that the French were going to throw away the certain success which was in their hands, for the sake of a "set piece" in the shape of a stand-up fight, to come off between Agincourt and Maisondelles.

We see thus that in the Crécy and Agincourt campaigns Edward and Henry had contrived to get themselves into the most unfavourable positions strategically. Edward was forming front to a flank, with the certainty, if defeated, of being forced back on the Somme or on the sea, in which case he must be surrounded and forced to surrender. Henry was in an almost worse position, namely, with his enemy across the only road to Calais, and behind him an unfriendly country, bare of supplies and bounded by the flooded Somme. Such however was the confidence of both kings in their armies that neither hesitated to fight, nor does either seem to have dreamed for a moment that the issue, if it came to fighting, could be anything but favourable to the English.

The French strategy in both campaigns was of the simplest, soundest, and most obvious kind to begin with; and in the Crécy

campaign there does not seem to be much to criticise up to the time when strategy merges into tactics. In each case a large French army was being gathered from the north east of France. This army was in a position to drive the English back to their base at the mouth of the Seine, or, if a flank march was attempted through Picardy to Calais, could either force them off their communications into the sea, or block the road to Calais by getting across the line of march. Edward III was confronted with the first of these dangers, and, in fact, was forced to form front to a flank at Crécy. Henry, on the other hand, after completing three-quarters of his march, found his road to Calais blocked by an immensely superior army, which had the option of fighting or not at his pleasure. Nothing but a successful battle could have saved the English in either case; and the French, by accepting battle at Agincourt, threw away all the advantages which correct strategy had given them.

Having discussed the strategy of the campaigns we will now consider the detail of the two battles; taking Crécy first. Edward III, after crossing the Somme at the "Blanche Taque," found his flank threatened by the converging French armies, and decided to stand at Crécy-en-Poictieu, a small town lying a long day's march from the Somme, and about ten miles from the sea. The French main army was at Abbeville, and Crécy covered the road from that place *via* Étaples to Calais. The country is open and undulating. Just above the village of Crécy a small stream, called the Maye, rises among several re-entrants, through one of which runs the road from Abbeville. On the north-east of the village there is a deep re-entrant, called the Vallée aux Clercs, which runs down to the source of the Maye. Near the Crécy end of this re-entrant and on the northern side of it there is a certain amount of flat ground backed by a fairly steep slope; further north-east towards the head of the re-entrant the slope is not so steep, but there is no flat ground.

King Edward disposed of his army in the usual three "battles." The Black Prince, then sixteen years old, who had been knighted only a short time before, was in nominal command of the right "battle;" the Earl of Northampton commanded the left; the King himself commanded the reserve "battle," and took up his own position on a windmill at the top of the slope behind the reserve "battle," rather more in rear of the Black Prince than of Northampton, for he rightly judged that the brunt of the fighting would fall on his son's command. In front of the wings of each of the front "battles" were posted all the archers of the force, in the famous formation commonly known as the "harrow." This was in fact a triangle of long bowmen in open formation; the base of the triangle being level with the men-at-arms. There was an ample interval from front to rear of each archer, and also from right to left. Each successive line to the front was shorter than the one behind, until the apex of the triangle consisted of about ten to twenty veterans, chosen for especial stoutheartedness and skill with the bow. Thus the general appearance of each division was a line of men-at-arms with a

triangle of archers projecting from each of its flanks. The medieval idea of a battle was for the mounted men-at-arms to make a furious rush at the opposing men-at-arms, no cavalry manoeuvring was thought of, and the fight was usually decided by a hammer-and-tongs mêlée. The merit of the new formation was that the archers were, by it, enabled to shoot to the front or to either flank, and to rake the charging horsemen with a converging and finally with a flank fire, which destroyed all semblance of formation, and left only a confused mob to attack the formed line of the defenders' men-at-arms. This was essentially a defensive formation. Edward knowing the impetuosity of the French leaders, and of the French chivalry which formed the mass of the army, counted confidently on being attacked in his carefully chosen position. So confident was he in his expectations that he dismounted all his knights and men-at-arms and made them rank themselves on foot, a formation until then unknown in Europe generally, but so successful at Crécy, that it was subsequently adopted by the French both at Poictiers and Agincourt. Edward himself ascended the windmill* mentioned before, in an admirable position for seeing the whole ground.

It is worth while pausing to enquire how this new combined formation of archers and dismounted men-at-arms was initiated and developed. The power of men on foot to repulse the most heavily armed and recklessly brave horsemen had been first demonstrated by Wallace at the battle of Falkirk, when the Scottish "rings," consisting of peasants raised chiefly in Fife and Forfar, easily repulsed with their pikes the furious charges of Edward I's heavily armed cavalry. Edward I settled that day by withdrawing his shattered horse, and bringing up his archers, who at their leisure shot the "rings" to pieces, for the Scottish nobles, whose duty it was to attack the archers, being jealous of Wallace, had early ridden off the field with their mounted retainers, leaving the peasants to fight it out, as the footmen afterwards did at Flodden. The next development was the battle of Halidon Hill, also in the Scottish wars, where the archers were grouped on the flanks of the pike or spearman. This formation saved the dismounted spearmen from being at the mercy of the enemy's archers. The victory at Halidon Hill encouraged the Earl of Northampton to try the formation against the French on the Flemish frontier at the small battle of Morlaix, where it was again successful; and it was, no doubt, owing to Northampton that the new formation was tried at Crécy on a larger scale, for King Edward's own sympathies were all with the old order.

A most cursory examination of the field of battle on the spot will show that while the general position chosen by the King was excellent, and the formation of the troops was most suitable, the placing of the Black Prince's "battle" left much to be desired. The right flank was secured by the brook and the dense and impassable

*The mill has been demolished, but its raised site is still prominent and gives a good view of the field.

forest of Crécy, but the Black Prince's division, instead of being posted half way up the slope, where the hostile cavalry would have had to charge uphill, and where the archers could have easily fired over each other's heads, was pushed out into the plain at the foot of the hill. This threw away the advantage of position and invited the tremendous repeated cavalry attacks which were repulsed with such difficulty. It is to be noted that similar attacks on Northampton, who was posted half way up the hill, seem never to have reached the English line at all, but were stopped by the archers alone. There was, however, another portion of the French army, which if properly handled, might have given a different complexion to the battle. This was the large body of Genoese cross-bowmen. It is not generally known, and was certainly not realised by the chroniclers of Crécy, that the cross-bow was a weapon which far surpassed the long-bow both in range and in penetrating power. So deadly was it, that the Pope, 100 years before Crécy, had interdicted its use as being inhuman, and had thus unknowingly given a fresh lease of life to the long-bow. It was a short very thick piece of wood bent by a thick very powerful cord, so thick were both wood and cord that no man could bend the bow by hand ; it had to be bent forcibly by a "moulinet" or wheel. When the bow was bent the string was held by a catch, and released by a trigger, the weapon being fired from the shoulder. Its great drawback lay in the fact that it took a very long time to bend and aim, and no one then had apparently thought of volleys by alternate ranks.

On the afternoon of Crécy there had been a very heavy summer shower, which had made both cross-bow and cord even stiffer than usual. The French leaders, wholly ignorant of the tactical use of weapons, ordered the Italian cross-bowmen to advance as near as possible to the English line, thus throwing away the advantage of the extra sixty or seventy yards' range, which the cross-bow ought to have given them. The moment the Italians got within range of the long-bow, which fired six arrows to one of the other, they were overwhelmed by such a rapid and astonishingly well sustained flight of arrows, that they were unable to stand up to it for more than a few minutes, and began to retire, in fair order, (for they were well trained professional soldiers), intending to reach a position, where, being out of range of the long-bow, they could return the fire with interest, and at their leisure. The French leaders had not knowledge enough to divine the object of the retirement. The nobles had only under protest allowed the Genoese to prepare the combat. Even had their leaders understood, the main body of the army was quite out of hand. The whole of French chivalry broke loose and made a simultaneous rush at the English position. They galloped over the wretched cross-bowmen, who were just mounting their own side of the slope, cut them to pieces *en route*, and charged the English line. As the horsemen reached the bottom of the incline they got within range of the long-bows and the arrow hail began again with such rapidity and concentration, that before the charging line had

got fairly extended, numbers of men and still larger numbers of horses had fallen. The bodies encumbered the ground and broke the formation. Such however was the courage and impetuosity of the French horsemen, and such were their numbers, that a very heavy body of French reached the Black Prince's "battle" in spite of the tremendous shower of missiles which beat on them at every yard of their advance; for the steadfast archers stood to it with the bow alone until the French horse were actually within the front ranks of the "harrows." A hand to hand fight ensued until King Edward from his windmill ordered down a timely reinforcement which turned the fortunes of the day, and in half an hour the first French attack was in full retreat up the southern slope.

The worst was over, but the battle was by no means ended. The French rallied and attacked afresh, only to be disordered by the masses of dead and dying men and horses, and to be brought to a standstill before they could reach the English line. No less than fifteen times did this indomitable cavalry renew the attack, and its efforts were only stopped by darkness. On no occasion, however, after the first charge, did it manage to pass through the fire zone and reach the English line.

The battle had begun at vespers; it was now dark. The French army drew off, still undaunted, swearing to renew the fight on the next morning. The English could not pursue owing to the darkness, and, as the chronicler says, owing to the rampart of dead bodies which cumbered the ground. The night was passed by both sides on the battlefield, and the French army moved again to the attack at dawn, but losing its way in a mist round the village of Wadicourt, at last acknowledged defeat and withdrew to Abbeville.

The battle was lost for the French by their mistake over the handling of the cross-bowmen, and was won for the English by the skill, steadfastness, and discipline of the archers, who maintained their formation and fire-discipline even when the front ranks were pushed in by the French cavalry, an achievement supposed to be impossible for the light armed "bows and bills," when once the heavy armed cavalry was among them. The left "battle," commanded by the cool and experienced Northampton, was never seriously shaken.

The famous incident connected with the death of the blind King of Bohemia occurred in the dusk during one of the latter rallies and charges. A stone cross on the field marks the supposed scene of his fall, and his name is honoured by a tablet on one side of the national monument erected to the memory of the brave men who fell fighting for France on the 26th of August 1346. It may be interesting to explain how this royal knight-errant came to be at the battle at all. "*Que diable allait-il faire dans cette galère?*", as his French friends would say. He seems to have been a monomaniac on the subject of knight-errantry. He had spent his life in neglecting the affairs of his kingdom and in seeking adventures in all the varied campaigns which took place in Europe, whether his

kingdom's interests were involved or not. He was Duke of Luxembourg, on the French border, as well as King of Bohemia, and the news of the probability of a fight seems to have drawn him irresistably, though he was in no way interested in the quarrel between Edward and the French King. His death was an incalculable benefit to his country, for he was succeeded by a cautious and far-seeing son, who became a most distinguished statesman. This son was present at the battle, but at his father's death wisely rode off the field.

The results of the battle of Crécy were purely negative. Edward was able to continue his march towards Calais, and reached that town unmolested, but reaped no other advantage in return for the great sums of money wasted in the campaign, and for the heavy losses incurred from first to last. As is usual, the losses in battle were insignificant compared to those caused by fatigue and privation during the raid on Paris and the march to Calais.

We will turn now to the fight at Agincourt. A ride of about twenty miles by cross-country roads brings us from Crécy to Agincourt village. We have seen how Henry V, with his worn out and starving army, found himself on the evening of the 24th of October 1415 encamped on the high ground round the village of Maisoncelles. The French army was bivouacked round the very similar village of Agincourt, on both sides of the road which led from Maisoncelles to Calais. The French need only have retired slowly fighting a rear guard action, and harassing the English flanks, in order to ensure the unconditional surrender of the invading army; for the English seem to have got down to their very last mouthful of food, and all foraging in the face of such a huge army and in such an unfriendly country was out of the question. However the noise in the French camp, which was astir all night, showed that the enemy was ranking himself, and preparing for a pitched battle. The rain descended in floods all night, as it had done during the whole of the last ten days of Henry's march. Morning broke with terrible squalls of wind and fresh torrents of rain.

The scene of the battle was an irregular parallelogram, closed on the south by the village of Maisoncelles; on both sides were the hedges and orchards of Agincourt and of another large village called Tramecourt. Between these were the common lands of the three villages. This land had been ploughed and cross ploughed, and the rain, which had been falling without ceasing, had turned it into a quagmire. The road in those days seems to have run from Maisoncelles between Agincourt and Tramecourt. It now runs from Maisoncelles straight to Agincourt. The parallelogram was about a quarter of a mile wide at the northern or French end, and about three-quarters of a mile wide at the English or southern end. A gale of wind blowing from the south-west helped the English archers, giving them probably fifty yards extra range. The ground sloped down gently but quite perceptibly from north and south to the point marked "C" on the sketch. The distance from the French

to the English original positions "A" to "B" is about three-quarters of a mile. The clay soil had got into such a terrible state from the unceasing rain that even on the road men were standing far over their ankles in mud, and the troops of both armies who were deployed in the fields were up to their knees in the tenacious clay.

It was clear that it was much to the advantage of each army to induce the other to attack. The English were nearly worn out with hard marching, exposure, and starvation; the French were in nearly as bad a state, and in addition, owing to their great numbers and to their want of homogeneity and discipline, were not even properly ranked an hour after daybreak, though they had been under arms all night. Many of the men-at-arms remained mounted all night so as to avoid sleeping in the mud, so the state of the horses may be better imagined than described, and this alone largely accounts for the failure of the early part of the French attack.

The French had large numbers of archers and cross-bowmen, but such was the invincible pride and ignorance of their leaders that they were not even brought from the rear, and there was no missile weapon to oppose the English long-bow. The French army, even without the bowmen, was not able to deploy owing to the narrow front of the battlefield chosen by the Constable d'Albret. It was ranked in three "battles," one behind the other, each consisting of heavily armed men-at-arms. The two leading "battles" were on foot; the third was mounted. In spite of the crowding there was no attempt at any kind of flank attack; this with the lack of use of the cross-bowmen shows that the French had no better knowledge of tactics, after seventy years' of continuous war, than they had at Crecy.

The comparative width of the English end of the field allowed the whole of the army to be deployed. It was formed in the usual three "battles," but such was Henry's paucity of men, and such was his confidence in his troops, that he put all three "battles" in the front line, leaving no support or reserve at all and, as will be seen later, not even a camp guard over his baggage. The archers were in triangles, as at Crecy, in the flank of each "battle." Each archer was provided with a stout stake or pole, sharpened at each end, which he was instructed to stick into the ground in front of him to ward off a cavalry charge.

On each flank of the first French "battle" was a mounted squadron which was ordered to open the battle by charging and cutting to pieces the English archers thus clearing the way for the dismounted fighting men, who would follow. There was much delay, and some pourparlers passed between the opposing leaders, but at last Henry determined to attack, as delay was all in favour of the French. The order was given to "up stakes" and march down the hill towards "C." Very slowly the English line moved, for the heavily armed men could hardly lift their feet in the deep clay. After an advance of 200 to 300 yards the toiling English saw a movement run along the French line, and Henry instantly divined what had happened.

The impetuous nobles and gentlemen who formed the bulk of the French army would not stand to be attacked, but had got out of hand, had levelled their lances, and were themselves advancing to attack. Instantly the English received the order to halt and dress, and the archers to fix their stakes. This change of manœuvre must have been carried out at about "D." The French, it will be seen, had to wade through the mud about 500 yards down their own incline, and, what was worse, about 250 yards up towards the English line.

The attack began by the two squadrons of cavalry moving off and converging towards the English front. They advanced at a slow jog trot down the hill, for the horses were worn out, and the mud was so deep that even fresh horses could not have moved freely through it. When they reached the foot of the slope and began climbing up towards "D" the arrow shower began to reach them, and horses began to fall. The casualties at this time were chiefly among the horses, for such was the dread of the long-bow inspired by Crecy and Poictiers, that the French armour had been made thicker and stronger each year, with the result that at Agincourt very few men were killed by arrows or by the swords of the men-at-arms. No horse that fell could rise, because of the mud, and no rider once down was able to get on to his feet, owing to the weight of his armour, which held him fast in the mud. Once down, each man lay where he fell until either trampled into the slime and suffocated or killed unresisting by the English later on. In vain the knights urged on their horses. The jog trot quieted down into a slow walk up the slope. Worse and worse grew the disorder, but the undaunted survivors forced their way up the slope, until a gallant few reached the archers' staves, only to be hauled off their horses amidst the fierce shouts of the archers, who had thus, without any aid, repulsed the charge of the flower of the heavy armed cavalry of Europe.

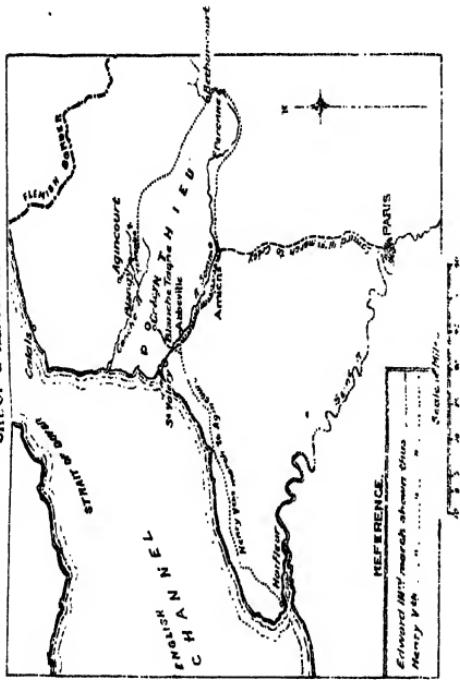
Soon after the cavalry began to fall, the first "battle" of the French army heaved itself out of the knee deep mud in which it had been standing for hours, and moved slowly down the slope towards "C." By the time the cavalry had been destroyed, the first line of infantry had reached "C," and the English archers, having finished with their mounted opponents, had leisure to reform their order and to open on the advancing foot. Owing, however, to the thickness of the armour, the impression made was not so great as on the cavalry; and practically unchecked by the arrows which beat on them at every step, the hostile line at last reached the English men-at-arm. These were forced back a few steps, but then a state of things ensued which is unparalleled in the history of war. The French men-at-arms had used up the last fragment of their strength in reaching the English line, and the front rank was unable to move a foot further. The French "battle" was eight or ten ranks deep. The rear rank pushed the front rank over, closed up, and then literally stuck in the mud. The men were jammed so tight that only those in front could

move or use their weapons, which made little impression on the heavily armoured English men-at-arms. The remainder could neither advance, nor retreat, nor defend themselves. The English archers, light armed and free to move, slung their bows, swung round on the rear of the helpless French, and plied their axes and malls with desperate energy and with fearful effect on the defenceless mob of the enemy. In twenty minutes the first "battle" was destroyed to a man. It was high time; for now the second French line, the main "battle," was slowly heaving itself up the 250 yards from "C" to "D." It was led by the Duke of Orleans and the Duke of Bourbon, and all the highest names of France were to be found in its ranks.

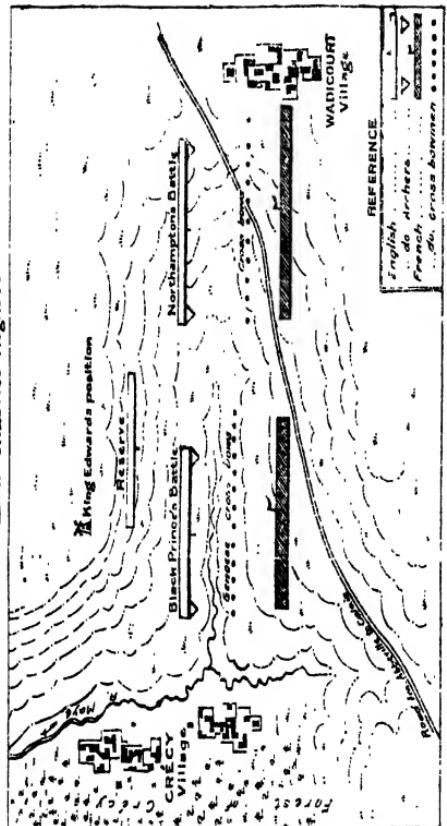
The English line clambered over the draggled remains of the first "battle" of the French, and formed hastily to meet the new body of troops, which was many times as numerous as the whole English force. The condition, however, of this so-called "fresh" French body was, if possible, even more deplorable than that of the first. The men had been ranked all night, and had stood all day up to their knees in the clay, and they, too, were brought to a standstill in the furrows just before they reached the English line. The Dukes of Orleans and Alençon and some of their immediate following, who had probably been able to find food, rest, and covering during the past night, pushed on alone with the most desperate valour, and were met in a Homeric conflict by King Henry himself, Duke Humphrey of Gloucester, the Earl of Suffolk, and some others. The Duke of Orleans was wounded, and was afterwards found half dead under a heap of slain. The Duke of Alençon killed Humphrey of Gloucester and reached the King, from whose helmet he cut a "fleuret," and all the rest of the group displayed valour worthy of their name and race, but the main body met the same fate as the leading "battle." The front rank was held by the English men-at-arms, while the archers hacked their way into the helpless mass of soldiers, who were unable either to advance or retreat, or resist. In half an hour this "battle" also was either destroyed or dispersed, and the weary but triumphant English reformed to meet the last French line, which had been kept mounted all this time with a view to their being used in the pursuits. The mounted men had, however, been kept too long, and were by now thoroughly demoralized. The whole line incontinently fled without making any attempt to retrieve the issue of the day. With them fled all the archers and cross-bow levies (said to have numbered 10,000 men); and the battle was over.

There was no question of pursuit, and the English were about to count the slain and captives, when an alarm was suddenly raised that a new French army was advancing from the direction of Maisonscelles. The numbers of the French were so great that the rumour was not improbable. Henry, seeing his men scattered all over the field making prisoners, ordered the whole army to form again, and, apprehensive that the numerous prisoners might collect

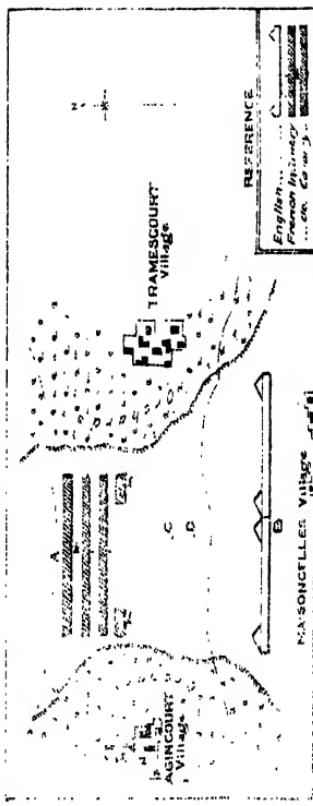
**Rough Sketch of Marches leading up to
COURT & AFGHANISTAN**



Sketch Plan of the VALLEY aux CLERCS &
BATTLE of CRECY 26th Aug. 1346.



Sketch Plan of the BATTLE of AGINCOURT, 25th Oct. 1415



and renew the attack, ordered them all to be slain. The infuriated archers, realising that this meant loss of ransom, refused to obey, and the King, seeing their hesitation, immediately sent his body-guard to enforce his terrible command. Nearly all the prisoners taken in the battle were now killed in cold blood, and it was only when the massacre was over, that it was found to have been unnecessary. The story of the French advance had been greatly exaggerated, it proved to be merely a raid on the King's unprotected camp and baggage, made by a local magnate, the Sieur Isambard d'Azincourt who killed some of the grooms and army chaplains, and made off with the King's crown, wardrobe, and great seal.

Thus ended one of the most bloody, one-sided, and profitless battles ever fought. The victors gained nothing by the campaign, not even the ransom of their prisoners. The British army simply passed through the country on this occasion, leaving no lasting mark or impression. Henry marched on quietly to Calais and at once crossed to Dover. He prepared for another campaign which, except for one severe siege (of Rouen), was chiefly a political one, and by playing off the Burgundians against the Armagnacs he contrived to get himself proclaimed King of France.

The English loss in the battle was very slight, the roll of killed including only the Duke of Gloucester; the Duke of York; the Earl of Suffolk; two knights, called Sir Richard Keighley and Sir John Podmore; a Welch squire; David Gam, well known in contemporary history; 13 men-at-arms; and about 100 archers. The French losses amounted to about 1,500 knights, and 5,000 men-at-arms; and amongst the dead were those bearing the noblest names of France.

Looked at as a whole the battle was a hammer-and-tongs soldiers' fight. No generalship was shown on either side, indeed the French leaders, while showing the greatest bravery, could not have acted more disastrously for their side, if they had tried to throw away the battle. On the English side, the archers won the fight, not by their skill in archery, but because owing to their light armour and open order they were the only combatants who were able to move freely and use their weapons. Agincourt sounded the final death-knell of defensive armour and feudal chivalry.

THE MILITARY EDUCATION OF THE OFFICER OF THE VOLUNTEER FORCES IN INDIA.

By MAJOR J. WALTER LEATHER, II U. P. HORSE (VOLS.).

The importance of the military education of officers of the volunteer forces in India will be readily admitted, and although the volunteer officer is in the position of the student, there are nevertheless certain aspects of the subject which he can properly present for consideration without infringing on the position of the instructor.

There is no doubt that at the present time we volunteer officers might frequently be weighed in the balance and found wanting, even when judged from such a low standard as might reasonably be employed. The reason for this state of things may, I believe, be expressed very concisely. It is a case of little being asked, and therefore of little being given. It may be useful to exemplify this. A gentleman of my acquaintance accepted a commission in 1910, and yet, up to date, he knows practically nothing of what might reasonably be expected of him. But he is a first-class sportsman in several directions, and, I should say, is a born leader of men, and would make an excellent officer. If he understood that his commission carried such and such responsibilities with it, I believe he would accept them as a sportsman, despite the fact that they would perhaps mean the loss of a few games of polo or tennis. If one accepts a commission, it should be on the clear understanding that the promotion entails certain responsibilities. These might be two-fold:—

(1) That an officer shall attend a high proportion of camps-of-exercise. It would not be unreasonable to make the proportion three camps in four years. Many cases could be mentioned where officers have neglected to attend without any fair excuse at all. Here is one. A gentleman in one of the services accepted a commission in 1908, and at the time of the following camp-of-exercise, of which several months' notice had been given, he was doing his ordinary work in the next district, but neither attended the camp nor sent any excuse. It is absurd to suppose that any of us cannot, at least in most years, so arrange our ordinary work that time can be found for our brief military training.

(2) He should be obliged to qualify in a reasonable test, one considerably more advanced than that at present usually applied, within, say, two years of the date of his commission.

Another question is whether some attempt should not be made to persuade officers to undergo short courses in musketry and signalling. For officers of the regular forces these courses extend over a period of, I think, three months.* It is probable that few

* The period is 60 days --ED.

volunteer officers could find the time to undergo such long courses in either subject. For example, much as I should have liked to take on one of these, especially the former, I could not have spared three months' privilege leave for the purpose. But the question nevertheless remains whether a course extending over, say, one month in each subject would not be feasible. Army pay should naturally be allowed during the period.

Again during the drill season something might be done in the matter of field-sketching. Adjutants are willing enough to aid us here, as in other matters; and I have known more than one adjutant try to get something done in this direction; but there is no impulse. The volunteer officer has his daily civil work to perform, and there is a very good chance that, just when his adjutant suggests an afternoon's lesson, he cannot conveniently take it up. But supposing it were laid down that, in addition to the musketry course, we *must* do a certain amount of field-sketching annually, we should then have to arrange with the adjutant beforehand for the course and keep to the engagement. Who among our officers could reasonably maintain that he could not find the necessary time?

Again, consider the subjects of transport and supply. It is, I believe, a fact that most of us know practically nothing about them. It is true that with the regulars there is a special unit which takes charge of this work, but would it be unreasonable to expect us to possess an elementary knowledge of, for example, the food requirements of our unit on the march, or how many carts would be necessary for the transport? This again is information which we can assimilate in spare hours.

It has often seemed to me that during the camp week the officers might learn more than they do. As a matter of fact, under present conditions, the adjutant's time is largely occupied with duties which really should not fall to him. This perhaps is principally owing to the fact that he is uncertain, until the event, of what officers will be present. He busies himself with arrangements for the camp, with commissariat, with musketry, with competitions—in fact, he is the willing horse to whom all turn, and there is no likelihood of its being otherwise until, as I have suggested, the volunteer is obliged to be present by the conditions under which he holds his commission. In this case he could be informed, before going into camp, what duties, apart from drill, would fall to his lot. The adjutant is our instructor, and he should be free to devote his time to his duties as such; but I feel that the officers should have a claim on the greater part of his time, and that the instruction of the rank and file should be left largely to the commanders of units and to the sergeant-instructors. As a matter of fact, it would do all company or troop commanders a world of good, if they knew that the responsibility of training their unit in drill rested largely with them. A feeling of responsibility is very stimulating.

Thus, if the chief part of the adjutant's duties during camp were the instruction of the officers, he would be able to have a class

every day. I am averse personally to this instruction being carried out at a general meeting of the corps. It is unreasonable to expect officers to feel as unrestrained, and to discuss their mistakes as freely, before the rank and file, as they would do when only their brother officers were present, all of whom are criticised in turn. The first part of the time would presumably be spent in criticism of the morning's work; this would be followed by an outline of the work for the morrow. In my experience the former is dealt with much too frequently in a cursory manner, or even left altogether. It is not merely a general criticism that is required. Where possible, the several stages of an operation should be discussed, of course with the aid of a map, and the senior commanders especially should be asked what their appreciation of the situation was at a certain time. To take an example: suppose a convoy had to be conducted. It would greatly assist a volunteer officer if, after the operations, he were asked what he understood of the enemy's whereabouts at a certain hour; if such and such a force had appeared against him, what measures he would have adopted; etc., etc., The value of a series of such questions seems to me to lie in this; the commander has just been over a certain piece of country, and has it in his mind's eye; such questions and criticism as the above will bring home to him both his own mistakes, and also the difficulties he might have encountered, much more perfectly than if he had had either a paper scheme, or had listened to a lecture on the subject. It happens far too frequently that we come in from a manœuvre and consider only one thing, namely, "Has our side won?" Such is perhaps natural, but it is not really the important point. Any of us might be given an objective impossible, or probably impossible, of attainment, in order that we might discover the best possible course to meet the most difficult conditions. Such schemes are, I think, not often set; but they have their value.

It seems to me that there are two points of importance for us to remember in the case of manœuvres: firstly, to execute the instructions received as well as possible, and secondly, to ascertain subsequently what mistakes we have made. I doubt if any volunteer officer seriously thinks he can play the game of war perfectly; though we go perilously near producing an opposite impression, seeing how small is the demand for the correction of our mistakes.

Then, again, the question arises whether some of the schemes that are given to us are always the most suitable. We all naturally like to have a large command, and no doubt practice in this direction is of great value. Moreover, so far as the mere number in a camp-of-exercise is concerned, I am sure that a large number tends to efficiency, because with a few men, say a score, it seems impossible to get that feeling of discipline which is so essential. But at the same time the operation in which the commander has only a score of men, appeals to me as one of the most useful for us in India. The conduct of a small convoy, the holding of a bridge, seizing a position

possessed of natural strength, placing a horse in a state of defence, etc., always seem to me to bring out the initiative in a man, and make him realize very fully what difficulties are really met with in soldiering. I once compoted in a scheme for the defence of a certain house under stated conditions, and I learnt more about the difficulties of (*a*) supplies, and (*b*) defence, during the few days that were allowed, than I should do in two or three years in the ordinary way.

There is another system of instruction which is occasionally adopted, namely, to ask volunteer officers to lecture before members of their corps. It is, I think, generally recognized, and I have certainly found it so in my own profession, that there is no better mode of working up a subject than to have to speak of it and explain it to others. Hence, assuming that the subject is suitably chosen, such a method might often be found useful. It is important to select a fitting subject. I once heard of a volunteer officer who gave a lecture on how to handle an army corps! It has to be recollected that no one can usefully address an audience on a subject with which he has but slight acquaintance, and one should abstain from dealing with things of which one has no knowledge at all. It would probably be better if we avoided lecturing on military subjects. If one gives a lecture, it is assumed that one is a past master in the subject in hand, and I am afraid few volunteers can claim to such proficiency in military matters. But whilst military lectures by volunteers are therefore unadvisable, it might often prove useful if the adjutant persuaded some officer, who cared to undertake the task, to prepare a suitable subject previously, and to open a discussion on it at a meeting of the members of his corps.

I think the time devoted to field operations is frequently too short. In my experience the whole thing is often over in an hour, or an hour and a half. I have in my mind work during the camp-of-exercise. Such short periods always seem to me to be unnecessarily brief. One corps with which I have sometimes had the privilege of working, takes a sandwich in a haversack and a feed of corn, and is away from camp for six to eight hours. Such an arrangement naturally gives opportunity for very much more instruction. Suppose, for example, with a mounted corps 100 strong, one part—the weaker—is to be found, and then pushed back by the remainder. It is, of course, always uncertain how the operation will "pan out," but suppose it to reach a definite stage by 11 or 11-30 A.M.; a general halt can be called, and while horses and men have a rest, the adjutant has a chance of explaining the chief errors that have been made, and then, either the same operation can be continued, or a similar one be begun in a new direction. There are two advantages in this method of planning the day's work; the one is, that on a long outing the members of the corps learn to save their horses, while they also get practice in rubbing them down and feeding them; the other is, that the officers have a second practice at the same kind of manœuvre. When it is recollected that we have such opportunities but once

a year or less, the advantage of doing a thing a second time during the camp period is obvious. Outpost work is another case where a long day is advantageous. I think I am right in saying that a piquet, to be able to observe a front of $\frac{1}{2}$ to $\frac{3}{4}$ of a mile, should be some 25 to 30 strong all told. At any rate, if the officer in command is to have practice in reconnoitring the front, in the use of both the cossack post and the double vedette, and in detailing the requisite patrols, this strength would be necessary. Now it very commonly happens that the proportion of officers present is far in excess of one to thirty men ; there are often two or three officers to each such units. If then, only one practice in outposts is arranged for, one or two officers out of every three get no real experience in commanding a piquet, for they must be acting either as subordinates or merely as onlookers. It is only when one has to carry out the complete operation that the responsibilities and difficulties are realized. If, however, a longish day is given to the work, one line of outposts after another may be selected, and at each succeeding one a fresh officer can take command of the unit and have his practice.

It is possible that there is room for more suitable text-books. Those issued for the use of the regulars are so comprehensive, that we really have no time to get them up thoroughly. Several very good ones on drill and manœuvre have been published specially for our use. Cheyne's and Allwood's small volumes I have found very useful, but they deal only with drill.

The foregoing are suggestions which seem to me to be useful. Some might be adopted under present conditions ; but even so, they largely depend on a better attention to elementary military study than is likely to be attained under existing terms of service. How many adjutants will not admit on reading this paper, that they have to be satisfied with much less ? And the difficulty will continue, so long as the present want of responsibility lasts. We may each hold an independent opinion on the question of compulsory service ; but if we join a volunteer corps, and further, accept a commission, though the act is assuredly a voluntary one, it should no longer be voluntary on our part to do just as much or as little training as may be convenient. The responsibilities should be accepted, and the duties must be made compulsory. I feel certain that if the regulations were revised in this sense, the force would not lose officers, and the paltry excuses made at present would disappear.

THE ORGANISATION OF DIFFERENT ARMIES FOR THE REMOVAL OF WOUNDED FROM THE BATTLEFIELD.

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(*Lecture delivered before the Military Society, Quetta.*)

The removal of sick and wounded during military operations, although it has only during the last two or three years become in the British Army a matter with which the general and administrative staff officer has to be more or less acquainted, has long been a subject of study in Continental countries, more especially in Austria. Austria during the wars of the 18th century was fortunate in having a monarch, Joseph II, who had direct personal knowledge of war, and who saw for himself the neglect and distress that was being caused by the system then generally adopted of treating the sick and wounded as near their regiments as possible.

The experience of the war of the Bavarian Succession and previous wars showed how greatly armies were hampered by retaining with them or in their neighbourhood sick and wounded who required prolonged treatment; and it was under Joseph II's influence that the principle of basing field medical organisation on a system of evacuation of wounded was first enunciated. The organisation he adopted was that of a series of mobile and other hospitals, along a long line of evacuation, in order to remove such cases as far as possible from the zone of hostilities and give them at the same time opportunities of treatment under conditions free from anxiety and disturbance.

It was long, however, before other countries learned these lessons, although during the Napoleonic wars the Austrian Contingent became famous for the skill and care with which arrangements for evacuation of its sick and wounded were carried out. The Austrian organisation for dealing with masses of wounded and evacuating them to fixed hospitals attracted the attention of the Commanders of the Prussian and Russian armies during the War of Liberation and after the battle of Leipzig they sent their Principal Medical Officers to study and imitate it.

The principle thus practised in the latter part of the 18th century by Austria is definitely formulated in Von Schellendorf's "Duties of the General Staff," where he states that the system of evacuating sick and wounded forms the basis of the entire Medical Service in the field.

We ourselves have been particularly slow in grasping these ideas, chiefly because we have never in modern times had to deal with large masses of wounded. As an instance of our failure to grasp

these principles, I might point out the organisation of the Territorial Forces, where no provision in the original scheme was made for the evacuation of wounded. Field ambulances were well organised and a scheme for providing general hospitals in different parts of the country was put on paper; but no provision was made in the first instance for bringing the wounded from the field ambulances to the general hospitals. I understand that the reason for leaving out the essential links in the system of evacuation in England was that the idea prevailed that the wounded would be taken over from the field ambulances by the various townspeople and villagers in the neighbourhood, leaving their removal from there to the General Hospitals a matter of chance, or haphazard organisation whenever the need or opportunity arose. This, however, would have created exactly the same situation which led Austria in the 18th century to think seriously of the necessity of adopting a complete system of evacuation. If matters were to remain in our Territorial Force as had originally been intended, we would have the same historical experience as the Austrians had then, should the Territorial Force ever be engaged in actual war.

A somewhat similar state of affairs existed in the reorganisation of our field medical service after the South African War when bearer companies and field hospitals were made into one unit, namely, the field ambulance, without providing any link between it and the lines of communication. This was subsequently remedied to some extent by the introduction of the unit called the clearing hospital.

Historically then, there has gradually been evolved in all armies, commencing with Austria in the 18th century and ending with ourselves in the 20th, a system of removal of sick and wounded which has become a distinct branch of staff work in the field.

The failure to recognise it as a concern of staff officers has been at the root of the so-called medical scandals of war. We, that is to say the British Army Medical Service, have specially suffered from this. So have the French. So too have the Russians. In the Crimean War the sick and wounded of the Russian side were collected in Sebastopol and Simferopol, their advanced dépôt, with no organization for removing them. The conditions there became so distressing that trying journeys over the Steppes into the interior of Russia by rough means of transport were regarded by the wounded as a blessing. On our side we had equally bad conditions under the old system of regimental hospitals, with nothing but haphazard arrangements behind them. The French lack of a system of evacuation at Solferino provided the theme which led to the formation of Red Cross Societies and Geneva Convention. Mr. Burdett Coutt's attack on the Medical Service at Bloomfontein was to some extent due to the fact that Field Hospitals were clogged for want of any recognized staff system of regulating how sick and wounded were to be dealt with under the conditions which arose.

The Austrians had no such scandals. Even in the disastrous operations leading to the battle of Koniggrätz on 3rd July 1866,

where they had 5,800 killed, 17,800 wounded and 7,800 missing, they were able to remove 11,000 of the more lightly wounded to Vienna along a definitely organised line of evacuation between it and Theresianstadt, before their decisive defeat. Only the serious cases were left in the hands of the Prussians on the 3rd of July.

In the Russo-Japanese War the Japanese had a perfect system of evacuation, based on the existing German field medical organisation. The extent to which it was worked may be grasped from the fact that out of 146,813 wounded admitted to field hospitals, 112,661, or 76·8 per cent, and of the 221,136 admissions for sickness 168,926, or 76·4 per cent, were removed to the fixed hospitals in Japan. The majority of the 7,742 Japanese wounded during the battle of Heikoutai between the 26th and 30th January 1905 were comfortably in hospital at Dalny on the 4th and 5th February waiting embarkation. The excellence of the system which could have achieved this rapid removal of wounded is more readily realized, when it is remembered that the battle was fought at least $1\frac{1}{2}$ days march from railhead, with a temperature varying from 1° to 10° Fahrenheit, and with snow falling heavily on the two days, 26th and 27th January.

I mention these facts because they give some idea of the extent to which the subject of removing sick and wounded has been studied in other countries, and of the success which has been achieved as the reward of clear thinking and adequate organization. Those of you who know how complicated and elaborate are the details which must be gone into in order to move an army of healthy men will realize how equally carefully detailed must have been the organisation, which could move without a hitch close on 300,000 sick and wounded from the battlefields in Manchuria to Japan.

In the official Medical and Sanitary Reports of the Russo-Japanese War you will find (p. 14), sketched diagrammatically the system by which this was done, and I propose in this lecture to show how far the principles should be or are applied in the field medical organisation of our own and other armies.

In the first place, you will see that the system is divided into three zones—the collecting, the evacuating, and the distributing zone. Practically all armies have adopted this system of zones; and we have embodied it now in the British Field Service Regulations, Part II of 1909, of which a Provisional Indian Supplement was in proof in 1910.

The collecting zone is the zone in which the sick and wounded are collected from their various units and brought to a definite point (generally speaking the advanced dépôt or rail-head) by the agency of regimental medical arrangements and field medical units.

The evacuating zone is, so to speak, the handle of a fan formed by the convergence of the collecting zone ramifications. It commences at the point where the ramifications of the collecting zone converge, and extends generally down the whole of the lines of communication to a sea or home territory base. The agencies of

evacuation in this zone are chiefly ambulance trains, hospital ships or other means of convoy by road, rail or water.

The distributing zone is in a way comparable to the collecting zone, with this difference that the work in it, instead of converging to the evacuating zone, diverges from it and spreads over the whole of the interior of a country where there are fixed or permanent hospital establishments, convalescent depôts, and so on.

At the point of convergence of the collecting zone with the evacuating zone, and at the point of divergence of the distributing zone from it, important medical arrangements have to be made. At the former, in the British and French organisations, there are the clearing or evacuation hospitals, and in other armies similar arrangements are made under different names, which can be explained further.

To take the collecting zone first :—

The main object of the medical service in it is to bring the wounded as rapidly as possible to the advanced dépôt or rail-head, surgical work being confined to applying temporary dressings, performing emergent operations for saving life, or rendering wounded fit for transport.

For this purpose there are—

- (1) a regimental medical and stretcher bearer service, and
- (2) special field medical units composed of stretcher bearer, dressing station and hospital service ;
- (3) clearing hospital services.

The regimental medical service does not work during an action over a depth extending much beyond half mile behind the fighting line ; generally its sphere of work does not extend further back than the position of the regimental reserves.

Most armies have much the same system of regimental work in this connexion ; that is to say they have regimental bearers in the proportion of 16 per battalion. The new Field Service Regulations of the French Army promulgated last year give a clear definition of the limitations of this service in the work of removing wounded. It is directed to form small shelters for wounded behind any natural protection in the ground over which the battalion is fighting, wounded unable to get there by themselves being carried by the regimental stretcher bearers as opportunity offers. At these shelters or "Aid posts" as they are called, the wounded receive first aid, and those who are able to walk are directed to make their way to definite positions further back. Others remain until the field medical units get in touch with the regimental medical service when they are carried to the main dressing stations, and thence to field hospitals.

In the British and Indian Regulations there is nothing definitely laid down as regards the formation of regimental or battalion aid posts to which wounded should be removed regimentally. Otherwise the limitation of regimental work is the same.

Perhaps the most elaborately organised regimental medical service is the Russian, where a regimental field ambulance with 128

bearers, 32 stretchers, 4 ambulance wagons, a dressing station, tent and equipment for a 16-bed field hospital form part of the regimental medical service of each 4 battalion regiment, but the work done in action by this organization is more that of a brigade ambulance than of a regimental medical service in the strictly continental sense of medical tactics. In Austria-Hungary the regimental medical service works somewhat differently from that of other armies. It is massed during an action to form one regimental aid post for a group of battalions, the grouped battalion bearers forming a bearer company for bringing the wounded from the fighting line to it.

As a contrast to this, the Japanese, in the Manchurian battles, generally formed aid posts for each battalion. They were placed under cover of a ravine, behind a mud wall, or in a village temple or house as close to the objective of the fighting line as possible. There was never any difficulty in keeping in touch with the fighting line because the rate of advance if many casualties were occurring was very slow; often not much more than a few hundred yards a day. When the advance was rapid there were only isolated casualties, which could be dealt with rapidly and left to the field medical units coming up behind.

The field medical units, which collect the wounded from the regimental medical service, and take temporary care of them until they can be removed to the head of the evacuating zone, work in two echelons in most armies. The first echelon in practically all armies is of the nature of bearer companies with a dressing station party which are under the control of the Divisional Administrative Medical Officer. In our Army, until after the South African War, the units of this echelon were brigade units.

All armies recognize the necessity of having this first echelon composed of a stretcher bearer unit with a dressing station party. This principle however was not given effect to when our bearer company and field hospital were amalgamated into a field ambulance after the South African War; for the bearer division of our field ambulance has no dressing station, although it is intended to represent the old bearer company. It has to borrow its dressing station from the tent division, which represents the old field hospital, and which essentially belongs to the second echelon of field medical units. This organisation of our field medical unit makes it somewhat difficult to draft operation orders, which provide for the movements of the bearer division of a field ambulance because something has to be added to indicate that a portion of the tent division must accompany it as a dressing station. The new French Regulations make the bearer company a kind of bearer convoy, as a separate unit from the dressing station; and in this respect it is similar to the bearer division of the British field ambulance; but its field ambulance is essentially a dressing station in itself, with so-called "hospital sections" brought up and tacked on to it whenever wounded have to be taken over from it as they would in the field hospitals of other armies, or in the tent division of the British field ambulance.

But neither the British nor the Indian organisation has quite the same divisional bearer company arrangements as in that of the continental armies and of Japan. In these armies the division has what is practically a divisional bearer battalion of two or more companies commanded by combatant or non-medical officers, but with an additional or head-quarters section, under a medical officer, composed entirely of medical personnel and equipment for the purpose of forming a main dressing station.

In Austria-Hungary on the other hand there is no bearer company. The whole of the stretcher bearer work of removing wounded is done in the area over which the grouped battalion bearers work; as already noted, the work of removing wounded from the regimental aid posts being carried out entirely by wheeled transport from the ambulance of the division. The position of the regimental aid posts is determined accordingly, i.e., they must be at or near a position to which wheeled traffic can be brought up.

The Germans and the Japanese have practically only one kind of ambulance, namely, a divisional field ambulance or bearer battalion equipped for work with infantry. Other countries such as the French, Austro-Hungarian, Italian, and British have cavalry field ambulances, specially equipped for moving with cavalry divisions. In India there is a fast moving field hospital, now called Indian cavalry field ambulance but it is not different from the slow moving field hospital or field ambulance, as it is now called, except in transport, and can scarcely be called a *specially* organised cavalry field ambulance.

It may be noted here that, as a result of the South African War the British Cavalry Division is by far the best endowed of all armies in respect to cavalry field ambulance, the field ambulances of the French, Austro-Hungarian and Italian Cavalry Divisions of Brigades being much smaller and fewer.

Some armies, notably those of Italy and Austria-Hungary, have ambulances specially organised for warfare in mountainous countries, with pack animal transport, special apparatus for carrying wounded on the backs of bearers, and detailed regulations as to how they work during an action. The Italian regulations for example on this point are instructive. The mountain ambulance of Italy has two light sections with a dressing station party each: and one complete infantry division field ambulance as a head-quarter's section. This head-quarter's section opens in a valley or accessible place near the spurs over which the fighting is taking place, and where there are roads, while the light sections go up the heights on either side of the valley and open advanced dressing stations as high up as may be necessary to keep in touch with the medical service of the fighting units. They form there shelters for the wounded, who are then brought down to the main dressing station below by relays of bearers.

The work of removing wounded to the main dressing stations of field ambulances is carried out in some armies, such as the Japanese,

entirely by stretcher bearers, *i.e.*, by the bearer companies; in the Austrian entirely by wheeled transport; in our own army, and in most other armies partly by stretcher bearers of the ambulance and partly by wheeled ambulance transport; while in the French Army not only stretcher bearers and wheeled transport but pack animal transport all form part of the ambulance transport for removing wounded to the dressing stations.

The depth over which ambulances, *i.e.*, bearer companies, work is determined by two considerations—(1) by the necessity of bringing wounded as far back out of the zone of fighting as possible, and (2) by the distance over which stretcher bearers or wheeled transport of the unit can work without losing touch either with their own unit on the one hand, or with the regimental medical service on the other. In the battles in Manchuria the Japanese ignored artillery fire, as they found it impossible, with stretcher bearers as the only means of transport, to place the dressing stations further back than about one mile or even less from the regimental medical service. They were consequently frequently exposed not only to severe artillery fire but also occasionally to rifle fire. When ambulances have both stretcher bearer and wheeled transport, positions fairly safe from field artillery may be selected for the dressing stations.

In connection with the question of stretcher bearer transport of field ambulances, it may be interesting to note that in the army of United States of America only two bearers are given to each stretcher, most armies allow four, and the British six, just as in India six are allowed for the dandy. I will not enter into a discussion as to the reasons of this difference in the number of bearers for each stretcher; but it may be noted that some experiments were made in the United States to test the carrying powers of two bearers with unexpectedly favourable results. Yet for the arduous work of collecting wounded when there are large numbers to deal with, two bearers per stretcher would undoubtedly be insufficient, just as six are probably more than enough.

The second echelon of medical units, in the process of collecting and removing wounded from the battlefield, is the field hospital. In this echelon the organization of different armies varies considerably. In the British the echelon no longer exists except in the form of the tent divisions of field ambulances, and in the Indian organisation the term field hospital, as applied to a medical unit, has also disappeared.

In Japan it forms an important divisional echelon of four field hospitals of 200 beds each, under the control of the Divisional Principal Medical Officer. In France, Germany, Italy, and Austria-Hungary this echelon is not under the control of divisions but is composed of medical units belonging to army corps troops.

But whatever the organisation, the principle in all armies is the same, namely, to have a series of units ready to take over wounded from dressing stations and provide them with temporary shelter, food, and treatment, to a more elaborate extent than is possible in a

dressing station which has been shifted possibly every day, or even more frequently. The stay of wounded in dressing stations is short, from one to twelve hours, or in some circumstances longer. In any case the object should be to get them away from the dressing station as fast as circumstances permit. In the field hospital echelon their stay is usually from one to three days or more, according to the nature of the wound, the conditions of the fighting and the resources at hand for clearing the field hospitals.

In the diagrammatic scheme the field hospitals are shown in an area behind the dressing stations, and in one alignment. In actual practice they would not all open together in fixed areas of the field, but as circumstances demanded at different times, on different days probably, and at different distances behind the fighting line. Thus hospitals opened at the commencement of the fighting might be far back at the end of it and remain for a day or two in that position; while others would come forward, occupy the positions of the dressing stations, if the fighting line advanced, and set free the dressing stations.

It is this use of the field hospital echelon that makes it necessary to keep it under the direct control of the division, and not of smaller units such as brigades. The field hospitals are, as it were, held in leash until the fighting ranks have more or less exhausted themselves for the day, they are then sent forward or opened where required. It is on this principle that most continental armies do not even let the divisions, but only the army corps, control the movements of field hospitals. Generally after a battle lasting two or three days, field hospitals will be found scattered over an area several miles in depth; those furthest back being the units opened in the earlier stages, and those furthest forward those opened at the end, or possibly too those opened early which have been already cleared and again brought up to be opened a second time. This was invariably the practice of the Japanese in the battles of Liaoyang, the Shaho and Mukden, and their method of controlling the field hospitals in this manner was of the greatest value in facilitating the removal of wounded subsequently to the lines of communication.

Stretcher bearers are not as a rule employed in removing wounded from dressing stations to field hospitals, unless the divisional bearer battalions are very strong in numbers. The two company bearer battalions of the Japanese division was intended to provide one company to work between the regimental medical service and the dressing station, and the other to work between it and the field hospital. But this was found quite impossible with the numbers which had to be carried; the whole battalion was required in the first line, and the men were too tired to work subsequently in the second line.

The army, which is most adequately provided with transport for this purpose, is the Austro-Hungarian, for its field hospital unit has an ambulance transport column specially attached to it, and, in addition, its equipment wagons are so constructed as to act, when empty

as ambulance wagons. The Indian field hospital unit is also provided with ambulance transport to work between it and dressing stations in advance; but as a rule when large masses of wounded are collected at dressing stations, their removal to field hospitals can only be achieved rapidly by impressing every available kind of transport or by waiting until the field hospitals come up to the spot where the dressing stations are opened.

The final stage in removal of the wounded in the collecting zone is that of clearing the field hospitals and bringing the wounded to rail-head or wherever the advance depôts are opened.

This is the work of the echelon known now in our army, both Imperial and Indian, as the clearing hospitals. It is on the correct working of this unit that we must depend for evacuating wounded rapidly, without confusion and with the least degree of discomfort to them. As is noted in the Field Service Regulations it is the pivot on which the whole system of removing sick and wounded turns.

It has two main objects :—

- (1) To take over all wounded from the field hospital, or, in our own army where there are none, from the field ambulances.
- (2) To carefully classify wounded for further evacuation and act as a sieve, which will retain those, who are either unfit for further transport or likely to be fit to rejoin their units in a comparatively short time, and prepare all others for transport down the line.

Some armies, notably the French, add other duties, such as preparation of empty railway trucks, vans and other rolling stock into improvised ambulance trains; but the two functions mentioned above are the essential duties of a clearing hospital in the system of removing wounded.

The clearing hospital takes over wounded from the field hospital echelon in front either by being pushed up to the area where field hospitals are being clogged with wounded after a battle or by opening further back, usually at the advanced dépôt, throwing out connecting links, such as rest stations, to refilling points, and arranging for the transport of wounded back from the field by means of locally requisitioned transport, supply wagons returning empty, and any specially organised ambulance columns. This work of transport of wounded from field hospitals to rail-head in the German and Japanese armies is arranged and carried out by special units, called sick and wounded transport units, usually in the proportion of one for each division. These units are concerned solely with the work of collecting, requisitioning, preparing and bringing up all kinds of transport material to the field hospitals; taking care of wounded during the journey; forming intermediate rest stations if the journey cannot be accomplished in one day; and finally handing the wounded over to the clearing hospital, or other unit at rail-head. Ambulance columns of this nature are contemplated, I understand, in the field organisation of the Indian Army. They are important and, in my opinion,

indispensable links in the system of removing sick and wounded from the field.

In the British Army the clearing hospital at present is practically a converted stationary hospital of 200 beds. In the Indian Army it is in the first instance formed of the existing field hospital (ambulance) units, but there seems no reason why, if circumstances permit, a clearing hospital should not be formed of general hospitals, or sections of general hospitals, at rail-head.

In France the clearing hospital is always a special unit at rail-head, but in France and operations on the Continent generally rail-head may be regarded as never being more than a short distance away from a field of battle. We must not, therefore, be led into the belief that rail-head is necessarily the position of a clearing hospital.

In Germany, Austria, and Japan the units for clearing hospital purposes are chiefly of the nature of a reserve personnel, with or without material. This is specially so in Germany, where the clearing hospital unit is a unit of personnel only, which takes over a whole village or section of a town, and forms a clearing hospital out of the local resources; or, in the case of a victorious action and advance, by moving up to the spot where the field hospitals are open, by taking over such material from them as is necessary for temporary purposes, and obtaining more subsequently from local or other resources further back.

The Japanese clearing hospital system is based on the German, but a certain amount of material is carried with the personnel, who form what is called a stationary field hospital near the area where the field hospitals are opened. This is their divisional clearing hospital. Their main clearing hospital however is invariably formed at the head of the lines of communication by what is called "a lines of communication or stationary hospital."

The Austrian clearing hospital system is the most complete and most instructive. This is what one would expect from an army which has had so long an experience in field medical organisation. It consists of a group of three medical units, namely, a mobile reserve hospital, a mobile convalescent dépôt, and a field rest station. Each army corps has two such reserve hospitals, two mobile rest stations, and three field convalescent dépôts. They are kept at the head of lines of communication, and are army units, ready to be sent forward to clear the field hospitals as required. These three classes of units form one or more clearing, or evacuating stations as they are called, for the two or more army corps of which the army is composed.

An evacuating or clearing station of this kind is formed as follows:—

The mobile reserve hospital, normally organised for 600 patients, receives all the wounded unfit for further transport; the convalescent dépôt, organised normally for 500, receives all the lightly wounded, likely to recover soon, and the rest station all other wounded

mainly, those fit for further evacuation down the lines of communication. A staff officer is appointed commandant of the station. He has a medical officer as his technical assistant, and has a special staff consisting of a representative of the Director of Railways, of Steamer Transport, of the Assistant Quartermaster-general Lines of Communication, and of Voluntary Aid Associations and Local Civil Authorities.

The duties of this staff are :—

- (1) To receive all sick and wounded as they come in from the field, and classify them or check previous classification.
- (2) To determine those who are to be retained as unfit for further transport (to be sent to the mobile reserve hospital), or as lightly wounded (to be sent to the convalescent dépôt), and those who are suitable for further transport (to be sent to the rest station pending entrainment).
- (3) To prepare convoys of those last going down the line, and to transmit intimation of their despatch, etc.
- (4) To prepare transport material such as improvised trains and river steamer transport.
- (5) To arrange for care of the patients during the journey.
- (6) To prepare and complete their documents.
- (7) To requisition for material to replenish expenditure.

These duties indicate generally what is meant by the clearing hospital being the pivot on which the evacuation of wounded turns. It is kept constantly ready for reception of new arrivals by a systematic flow of wounded, either down the line when fit for transport or back to their units when fit to rejoin. The first step is classification, and this system of classification into categories of wounded as regards fitness or otherwise for transport is an essential feature in the organised system of removing wounded. It should be commenced at the dressing stations, repeated at the field hospitals, and again at the clearing hospitals, because the condition of wounded may vary during the different stages. Much importance is rightly attached to this in the Field Medical Regulations of Continental Armies.

Once the wounded have reached rail-head their rapid evacuation to the point to which they may be distributed to permanent hospitals is simple, and depends on the number and capacity of ambulance trains, steamers, etc., which can be utilised and run regularly for the purpose from rail-head, or landing stages on rivers. The organisation and preparation of transport of wounded by rail forms an interesting chapter of study in itself; so too, though to a less extent, does transport by water.

When wounded reach the base, either in the home territory or elsewhere, they should be received by a distributing station which should be organised in the same way as the evacuating or clearing station at rail-head, chiefly with a view to classifying wounded

previous to despatching them to the various permanent hospitals in the home territory, arranging their routes, and so on. The Japanese had two such distributing stations, one at Hiroshima and the other at Osaka, the two parts to which sick and wounded were brought back from Manchuria. Each of these had 15,000 beds, in properly arranged hutments; the sick and wounded were classified there and those fit for further transport were distributed to the hospitals of their own divisions, at the head-quarters of each of which 10,000 hospital beds were as a rule prepared.

I have been obliged from want of time to omit many points, some of importance, such as the variation in the use of field medical units during strategical concentration, marches, advances to attack, during and after battle, in operations of defence, encounter battles, planned battles, sieges, and so on, which are dealt with in the Field Medical Regulations of some armies, although scarcely touched on in ours. They have all special features of their own affecting the medical service which are full of military and medical interest and well worthy of thought and consideration. In fact each stage in the system of removing wounded and each phase of field operations have many practical points and details worthy of study and discussion. The principles, however, which permeate the system may, I hope, be gathered from these notes; and it is only the general principles which can be illustrated in a single lecture, such as this, by the field medical organisation of our own and other armies.

VERNACULAR MAPS.

BY MAJOR E. M. J. MOLYNEUX, D. S. O., 12TH CAVALRY.

Of late years, there has been a great effort made to familiarise the Indian native soldier with the English alphabet, by making him pass in Roman Urdu before promotion. I have nothing to say against this: it often comes in useful, and can do no harm. But when the use of maps in the vernacular is denied to him, and he is told that henceforth he will be expected to work exclusively on maps with all printing in English only --as is very usual--then I think that a demand is being made upon him which is wholly unreasonable, and which, if persisted in, will be found both to dishearten him and to cripple his utility. Given a map which he can easily read and understand, the average Indian soldier or N.C.O. will make a remarkably intelligent use of it. Two seasons ago, I took a regiment of Imperial Service Cavalry on manœuvres, and took the opportunity to provide them with maps, copied from the Ordnance Survey, in which all names were written in the vernacular character. I was surprised to find how intelligently they used them, and the excellence of the results obtained.

The reason commonly urged for making them work on maps with English lettering is that, on active service in a foreign country, the only maps they would get would have English lettering. I grant the force of this reasoning, and the desirability of their being able to read a map with English characters--provided always that there were any chance that they could reasonably be expected to attain such a standard in the immediate future. My contention is that they cannot do it, and that to expect them to do so is to attempt to exact from them a standard to which we cannot ourselves attain, in spite of our far higher standard of education. How many of us, who have passed the "Higher Standard," could do it? Are there a dozen officers of the Indian Army who could use a map, crowded with names in Urdu or Hindi, with the same facility with which they could use one in English? I doubt it. Even if we set them the far easier problem of making use of a map in a foreign European character, say, German or Russian, they would still fall short of what we expect from our Indian troops, even though the officers had a good literary acquaintance with those languages. I can read Russian with a fair degree of ease: some time ago I made the experiment of taking the index to a map and then trying to find the places on a map crowded with names in Russian character, and then trying to find other places on the same map printed in English. The names in the English character caught the eye in an instant; those in Russian did not, until I commenced to spell them out: with the result that I could work three or four times as fast on the English map as I could

on the Russian one. Any one who makes a similar experiment will find the same result. Then how can we contend that, in work which involves map reading (in which everything depends upon facility and certainty, and which is difficult enough, in all conscience, in an unknown country), we can reasonably expect our poorly educated Indian troops to obtain satisfactory results in this most important particular?

The alternative appears to be obvious; to frankly recognise that the feat is beyond the powers of our Indian troops at present or in the immediate future, and to give them maps in which the English and vernacular names are placed side by side. I understand that the printing of names on any map is not a matter of very great difficulty or expense: once the map itself exists, the printing of superimposed names is simple enough. If we required such maps in any foreign theatre of operations—Somaliland, Egypt, or Afghanistan, for example—of which we have the maps already, the lettering of a few hundred of them in the vernacular would be cheap and rapid and we should not then be in any danger of disappointment at the results which our Indian troops would obtain in their use. Inability to read maps, or the want of intelligence in their use, has often had disastrous consequences in war; and we cannot contemplate with equanimity the recurrence of mishaps from these causes.

THE "INTENTION" IN OPERATION ORDERS.

By A. B B. A.

If the trumpet give an uncertain sound, who will prepare himself for the battle?—(Cor. XIV, 8.)

In reading military history, the student cannot fail to remark the number of instances in which operations failed because a subordinate commander did not know, or did not appreciate fully, his commander's intention, and what that commander expected from him in order to further that intention.

It is clear that Grouchy, when detached in pursuit of the Prussians after Ligny, neither appreciated the situation, nor understood Napoleon's plan. The reason of this was that the orders and instructions, given to him by Napoleon, were rather vague considering the characteristics of the man to whom they were given.

Clam Gallas, in command of the detachment on the Iser, in 1866, was never told what Benedek's intention was. In the circumstances, he cannot bear the whole blame for the want of success of his operations. In direct contrast is the comparative ease with which the Prussian operations were conducted, owing to Moltke having taken his subordinate commanders into his confidence.

When Douay was sent to Weissemburg in 1870, he might have thought, so far as his knowledge of MacMahon's intention went, that his chief mission was to develop the facilities existing at Weissemburg for baking bread. Probably he did think so. The fault was that MacMahon, apparently, had no plan. Douay, however, cannot bear the whole blame for fighting a decisive battle instead of a delaying action only.

Zasulitch on the Yalu is said to have received conflicting orders from Kuropatkin and Alexieff. The fault in this case was one of dual control. But how, in the circumstances, could Zasulitch know what really was required from him? It is not surprising, therefore, that he fell into the same mistake as did Douay.

These are only a few of many instances. From them, however, the following deductions are made:—

- (a) *Every commander must settle on a plan of what he intends to do.*
- (b) *The immediate subordinates of every commander must receive clear intimation of the plan or "intention" of that commander.*

Objection has been made to the use of the word "intention" as being too vague, and not conveying the same meaning as such other phrases as "general task," "task allotted," etc. The meaning of "intention," as given in the Imperial dictionary, is—"A settled

direction of the mind towards the accomplishment of a particular act"; "Anything intended to be done"; "Purpose conceived." It is, therefore, considered that the word "intention," with the meaning here given, can be used more suitably in this connection than the substitutes proposed. The latter can be used more aptly for what are parts of, and subsidiary to, the main "intention." The word will, therefore, continue to be used in this article.

The intention of a commander can be conveyed to his subordinates in two ways, *viz*:-

- (a) Operation orders.
- (b) Instructions.

The intention can also be communicated verbally. In this case, however, it is advisable to confirm the conversation by written instructions, reiterating what has been said. By so doing, all possibility of a misunderstanding should be avoided, and in any case, the procedure is more satisfactory both to the commander and to his subordinate.

It may be thought that the intention might be made known either wholly in operation orders, or wholly by instructions. This is not so, however, because although, as will be shown later, it is necessary for every subordinate to know generally the intention of his immediate commander, yet the amount of such knowledge required varies in degree, and must be published with discretion. Such a course, moreover, would occupy more space in operation orders than is desirable in such a document; and the time and labour required for writing manifold instructions are too great to allow of such a method being followed under normal conditions. To sum up:-

- (c) *The general intention of the commander should be published briefly, in operation orders.*
- (d) *When it is advisable to amplify the information therein given, the amplification should take the form of instructions.*

The fact must be faced that owing to the introduction of the rifle, with its long range and accuracy, the whole tendency of modern tactics is towards an individualism which hardly existed in the days when men stood shoulder to shoulder, and several ranks deep. The necessity of delegating responsibility to "the man on the spot" is now a recognised principle. "It is usually dangerous to prescribe to a subordinate at a distance anything he should be better able to decide on the spot, with a fuller knowledge of local conditions, for an attempt to do so may cramp his initiative in dealing with unforeseen circumstances."* Because of this, not only is a latitude allowed, in the precise execution of orders, to a commander at a distance, but an obligation is imposed for the assumption of the responsibility of departing therefrom, should local circumstances demand such a course. The necessity of controlling the initiative delegated to

* F. S. R., Part I, Chap. II, sec. 2, para. 2.

subordinates, is, however, obvious. Without such control, to take the extreme case, the action of a lance-corporal might embroil a whole army, or group of armies, in direct opposition to the intention of the supreme commander. In such a case, the only commander left without any initiative would be the Commander-in-Chief, which is a *reductio ad absurdum*. The battle of Colombey Nouilly in 1870 is an example of the danger in point, though not of such an absolutely extreme case as here presented. Control, therefore, is necessary. At the same time, control must not degenerate into an interference which cripples the initiative of the local commander. This reasoning leads to the principle given in Field Service Regulations * :—

(e) "*The object to be attained, with such information as affects its attainment, should be clearly but briefly stated; while the METHOD OF ATTAINING THE OBJECT should be left to the utmost extent possible to the recipient, with due regard to his personal characteristics.*"

In writing the "intention" paragraph of orders, therefore, the question which has to be considered is—

"How much of the whole intention, i.e., the intention of the supreme commander, will each recipient of the orders require to know in order to carry out the task imposed on him individually?" It is clear that there is here a very wide range of degree in the amount of information required by the various subordinates. To take a few cases:—

(a) The actions of advanced guard or rear guard commanders may influence effectively the subsequent engagement. They, therefore, must have a clear knowledge of the general situation, and a complete knowledge of the intention of their immediate superior.

(b) In an encounter action, the very ability to deploy before the enemy can do so will depend on the action of the advanced troops. The commander of those troops, therefore, must be in no doubt as to the whole intention of the commander of the force which he is covering.

(c) Reconnoitring detachments, without knowledge of the intention of the commander who sent them out, cannot discriminate between what is important and what is not. They must, therefore, be made aware of that commander's intention, as far as it affects their particular mission.

It can, therefore, be laid down that—

(f) *Nothing should be omitted in the statement of the commander's intention that the recipient of the order requires to know in order to carry out the task allotted to him, and which he cannot know without having to send to the writer of the order in order to find out his real meaning.*

It might appear from the above that the simplest solution would be to inform every one of the intention of the supreme commander.

Two points, however, must be remembered. Firstly, a complete knowledge of the whole intention is unnecessary to the majority of the troops, whose horizon is necessarily bounded by the immediate local situation. In war, any unnecessary weight, whether physical or mental, must be rigorously excluded. Secondly, secrecy in war is essential. Even with the strictest precautions, operation orders fall into the enemy's hands. Prisoners, too, are taken, and prisoners sometimes talk. Occasionally men who are not prisoners talk also. It follows, therefore, that the fewer people to whom the intention is communicated, the better the chance of keeping the intention secret. It also follows that the less of the whole intention, *i.e.*, the intention of the supreme commander, that finds expression in the operation orders of the various links in the chain of command from General Head-quarters down to the unit, the less will be the chance of the enemy arriving at a complete knowledge of the whole intention. The deduction is that—

(g) *Every commander, in his own degree, on receiving the orders of his immediate superior, must determine his own intention with a view to carrying out the task allotted to him. In issuing his own operation orders, he will publish his own intention.*

The last sentence of the above deduction cannot be completed until the object of publishing the intention has been examined more closely. "The object (of an operation order) is to bring about a course of action in accordance with the intentions of the commander and with a full co-operation between all arms and units."* It must be remembered that the commander of a force can only give a right direction to the operation by which he hopes to bring his intention to a successful conclusion. He can only influence that operation when once initiated, by the use of his reserve. He must, therefore, inform his subordinates of what he wishes to accomplish. The degree of knowledge imparted, however, must in every case be suitable to the status of the recipient, and to the portion of the whole task which the latter is called upon to perform. No hard-and-fast rule can be laid down, but the following addition can be made to deduction (g):—

(h) *(His own intention only).....or such part of it as he deems advisable, having due regard to the necessity of secrecy in war, and of co-operation between all arms and units.*

If the above deductions—(a, to (g)—be inspected and summarised it will be found difficult to state the result more briefly or more concisely than in the words of Field Service Regulations †:—

"Operation orders should contain:— * * A brief summary of the intention of the officer issuing the order as far as it is advisable to make it known."*

* F. S. R., Part I, Chap. II, sec. 12, para. 4.

† II, sec. 12, para. 4.

As von Clausewitz points out * "All action in war is directed on probable, not on certain, results. Whatever is wanting in certainty must be left to fate or chance, call it what you will. We may demand that what is left may be as little as possible."

It is in order to leave as little to fate or chance as possible, that a commander not only gives a direction to his operation by issuing precise orders, but also informs his subordinates of his intention. By so doing, he enables the latter to co-operate intelligently towards the fulfilment of the common object, and in unforeseen circumstances, where no precise orders can reach them, to appreciate the situation and determine what action that commander would desire from them.

To express the intention without giving orders as to how it is to be carried out is to forfeit the advantages of co-operation, and to impose on subordinate commanders a responsibility greater than can legitimately be expected from them. To give orders without indicating the ultimate object in view is to tie down the subordinate commanders, and to prevent intelligent action in unforeseen circumstances.

For these reasons, operation orders are intended to be logical. They, therefore, consist of two parts :—

(a) Information.

(b) Orders.

(a) Information again consists of two parts :—

(i) Information concerning the enemy, and our own forces, whereby a military situation is created.

(ii) The intention of the commander, issuing the order, for meeting the situation created in (i).

Information should be given *as information*. When the information regarding the enemy is doubtful, the doubt has to be brought out in operation orders. Similarly, when the intention of the commander is published, it is said that "The G. O. C. intends" or words to that effect. The "intention" is information pure and simple. It is in no way an order. The word "will" must therefore never appear in the "intention" paragraph.

In the information paragraphs, a military situation is created, and placed briefly before the recipient of the order. To deal with that situation, a plan has been devised, and has also been indicated briefly. To give effect to that plan, orders are necessary. As has been said previously, the orders issued can only be those giving the initial direction to the operation. Except, perhaps, in very minor operations, they cannot be expected to meet all the varying circumstances which will arise between setting the troops in motion and the accomplishment of the intention. To attempt to do so would lead only to counter-orders and confusion. The orders give specific commands to all formations, units, and details concerned, as to what they are to do at a certain hour, or hours, with a view to carrying out the intention stated. Further orders will, if found possible and

necessary, be given later for further steps towards the fulfilment of the original intention.

The actual orders are written in a different strain to the "information." They must be precise and admit of no ambiguity. These paragraphs, therefore, must contain the word "will" or a word of equal value. It has been argued that because the word "intend" is used in para. 2, that, therefore, it ought to be used in the succeeding paragraphs. It would be just as logical as to argue that because the expression "is reported" sometimes occurs in para. 1, that, therefore, that expression should be used in all the succeeding paragraphs.

(ii) The two parts of operation orders are interdependent, and cannot be divorced. Neither part can be omitted, nor can any of the component parts of either be left out. The "intention" paragraph is most necessary and the most difficult to write.

CO-OPERATIVE CREDIT IN THE NATIVE ARMY.

BY LIEUT. G. DE LA P. BERESFORD, 10TH LANCERS.

The success of Co-operative Credit Societies in the United Provinces and Punjab and their popularity with even the slow-thinking and conservative zamindar clearly shows that they could, with advantage, be introduced into the Native Army. With this object in view a scheme has been drawn up for establishing a Co-operative Credit Society in a Silladar Cavalry Regiment, but there is no reason why the same scheme should not be modified by any one acquainted with the accounts of an infantry battalion and be applicable to the infantry.

The writer does not propose to enter into the "pros" and "cons" of the scheme, but it may be as well to make a few general remarks thereon before introducing it.

The history of Silladar Cavalry generally is full of instances of co-operation under such headings as the Horse Chanda, Mule Chanda, Grain Chanda and numerous other funds established from time to time to allow the burden of replacement of horses, mules or kit to be equally distributed among the members of a corps instead of being borne by individuals as was formerly the case.

The establishment of a Co-operative Credit Society in any corps would put the spare cash or savings of the more thrifty at the disposal of those temporarily in need of money at a comparatively low rate of interest. It is a well known fact that men pay village bunnias as much as 36 per cent on money borrowed and that men in the lines actually pay bunnias interest for looking after their money. It has been said that a Co-operative Credit Society would interfere with Regimental Funds and interest derived from loans for assamis, but its operations would not be on a sufficiently large scale to lend money for assamis and would act rather in the direction of supplying money in small sums, often to recruits and young soldiers who are still in debt to the regiment and who for marriages, funerals, etc., must, from time to time, borrow money.

This borrowing is sometimes done from other soldiers, friends or relations, but more often from a bunnia, with the result that a trifling loan at an unheard-of rate of interest is not overcome for a great number of years.

If a Co-operative Credit Society were established young soldiers would frequently be saved from years of debt, and thrift would be encouraged amongst the older men.

CO-OPERATIVE CREDIT FOR A SILLADAR CAVALRY REGIMENT.

- (a) To get for the men of the regiment advantages of co-operative credit and free them from excessive interest charged by bunnias.
Objects.

(b) To form a place for depositing sums of money in safety for the men.

(It is now known that men who place small sums with bunnias for safe custody actually pay interest thereon for keeping the money !)

(c) To form a source for sound investments for the higher ranks who frequently spend a great deal of valuable time travelling about the country looking after their investments.

There is a great advantage in this as it will bind the regiment together more closely than ever and the advantages of credit will be enjoyed by all ranks without affecting the general financial soundness of the Regimental Funds in the same manner as borrowing large sums from Government.

(d) By establishing a sinking fund increase the actual value of the shares and have for charitable purposes certain moneys now taken from the "Miscellaneous Fund." By charities it is meant the payment of pensions to old regimental followers and similar charitable acts that occur from time to time.

Operations. 1. Make loans to members.

2. Discount assamis falling due within certain periods, for instance—Sowar "A" goes on pension 31st December 1912. His assami will probably nett Rs. 300. He is badly in need of Rs. 200 on 1st July 1912.

This could be discounted like an ordinary bill or "Hundi."

3. Make loans to members upon personal security (that of their assami plus the value of their shares in the Bank) for a period not exceeding 12 months.

4. Make loans upon honour to members on a collateral security. This would be for the use of Bargirs, Clerks and deserving cases, such as Langris, Bhishtis and those of the followers who could be trusted.

5. Open cash accounts.

6. Receive valuables for safe custody.

7. Take over loans from bunnias.

A SILLADAR CAVALRY REGIMENT CO-OPERATIVE CREDIT SOCIETY.

Directors.	Ex-officio President. The Commanding Officer.
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1 N. O. per squadron.

Khazanchi.

Accountant and Treasurer.	Ledger-keeper or a Pay Sowar not actually doing Pay Sowar's work at the time.
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Assistant Accountant and Treasurer.	Half Squadron Commander, if not a General Director, otherwise second N. O. in squadron.
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Kote Daffadar.

Pay Sowar.

Darogha.

(To decide whether a loan is to be granted or not to any applicant in half squadron.)

Capital	1,000 fully paid up shares of Rs. 10 each = Rs. 10,000.
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		Rs.
	300 shares to Sowars	... 3,000
Method of allotment.	200 " N.-C. O.s	... 2,000
	500 " N. O.'s	... 5,000

Any class not availing itself of full allotment to have its quota of shares transferred to any class wishing to avail itself of same to be extended to pensioned establishment if found desirable.

All shares to be fully paid up at the time of allotment.

The Society (or Bank) on the decision of the Directors in open **Extension of capital.** Durbar to have power to increase the capital by issuing shares.

Should a sinking fund exist new shares issued to be brought at a premium equivalent to proportional share of sinking fund. This will ensure that there will be only one class of share in the Society and that all shares will be of the same actual value.

Rules.
Heading "A" - Conducting of Credit in open Durbar, i.e., General Meeting, on (or Bank). any important question.

1. All members to be allowed to vote
2. Any member with the consent of his half squadron Sub-Committee is allowed to bring up any matter affecting his own interests in open Durbar.

3. Balance sheet prepared daily and published weekly.

4. Interest calculated monthly, all fractions of a month over 15 days (except for February 14 days) to be calculated as a month, all periods under 15 days neglected.

5. The Directors to manage the Bank generally.

The half squadron Sub-Committee to deal with all matters affecting individuals before submitting them to the Directors.

6. The Accountant and Treasurer will keep accounts and prepare a daily balance sheet publishing the same weekly.

**Heading "B" - Membership and allot-
ment of shares.** it is necessary to possess at least one share.

2. Shares may be retained with permission of the Directors in open Durbar on joining the pensioned or reserve establishment, but such a member will not be allowed a loan beyond the value of his shares unless there is money lying idle in the Bank and he produces security.

3. Shares must be surrendered to the Bank on leaving the regiment unless they are retained under Rule 2, Heading "B." Full value plus half premium value arising from share of sinking fund will be paid to the surrenderer of shares.

4. Shares cannot be sold by one member to another without the consent of the Directors in open Durbar.

5. Shares cannot be inherited.

6. Defaulters and members who have committed offences against the Bank may be expelled by the vote of the members in open Durbar.

7. Shares allotted as under:—

.. Sowars	N.-C. O.'s	N. O.'s
10.	20.	50.

Any increase on these members with consent of Directors in Durbar.

1. Loans will be made to individuals and the amount available will be divided amongst the half squadrons in the proportion of the shareholder's interests (*i.e.*, shares) in the respective half squadrons.

2. Loans on honour—a small sum will be made available if necessary to give loans to deserving cases, such as Bargirs, Clerks, whose interests and security are such as to preclude them from getting sufficient money under the ordinary rules.

3. Loans to be repaid in 12 months.

4. Dividends declared quarterly to shareholders.

This will vary with the success of the Bank. Sinking fund takes one per cent.

5. Interest charged on loans 9 per cent.

6. Interest payable on fixed deposit accounts 7 per cent.

7. Interest on cash accounts at 4 per cent, when the quarterly credit balance has not fallen below Rs. 25, *i.e.*, interest allowed on Rs. 25 or such larger sum below which balance has not fallen.

8. Assamis to fall due will be discounted at 9 per cent per annum on Rs. 75 per cent of their probable nett value.

Heading "D"—
Accounts.

1. System double entry.

2. Capital account.

List of shareholders with value of capital (all shares to be fully paid up on allotment).

3. Daily cash accounts.

4. Personal accounts with each member. Each member to have a Pass Book.

5. Sinking fund accounts.

The sinking fund will gradually spring up as money is accumulated and may be called on to pay for losses.

Its income will be obtained as under:—

(a) One-ninth of all interest charged on loans, *i.e.*, this will mean that the amount available for dividends will be derived from loans at 8 per cent—*vide* 4 above.

(b) Profit on fixed deposits let out on loans at 9 per cent and on which only 7 per cent is paid.

(c) Profit on interest of money in current cash accounts on which practically no interest will have to be paid to the members of the Society.

Heading "D"—
Accounts.

6. Fixed deposit accounts.—

The scheme in question is merely an outline of what a Co-operative Credit Society in a regiment would have to be and such matters as the rates of interest would be fixed by the Directors in the first instance and altered from time to time by the law of supply and demand.

All rules are based on those laid down in Mr. Dupernex's "People's Bank of Northern India" and attention is drawn to page 27 of his book where he points out that "There does not appear anything in the organisation which can deter the most religiously-minded Muhammadan from taking part in it," and even if the Muhammadans of a corps were averse to taking interest they could still belong to the Bank and all profit on their moneys be devoted to some regimental charity.

THE MADRAS SEPOY IN THE PAST.

BY CAPTAIN BERKELEY HILL, I.M.S.

To anyone who studies the history of our Native Army from its earliest beginnings and then surveys the whole from a biological standpoint the conclusion that is forced upon him is this, namely, that a very singular want of appreciation of some very elementary facts of psychology is a marked feature in many of the crucial phases of its development, so that over and over again the reader cannot fail to be impressed by the results of either a misinterpretation of well recognised human attributes or a wilful neglect of previous experience.

In not one of the numerous branches of our political and social activity in India has this curious disinclination to act in conformity with certain biological principles been better manifested than in our dealings with the Native Army of Southern India.

The history of the Madras Army from the foundation of the first regiment of sepoys in 1758 down to the present day should be to any student of psychology a mine of interest, because it affords amazing examples of the power of suggestion upon the human mind as well as curious revelations to what extent it is possible, for otherwise apparently intelligent men, to disregard *in toto* not only the results of their own observations and experience, but to shut their eyes to many of the ripest and best traditions of military history.

At times one would almost be led to suppose that the authority for carrying out the changes in the composition of our Indian Army which followed upon the conclusion of the First Burma War lay vested in the hands of men who, not content with exhibiting themselves as the victims of a most irrational prejudice, proceeded to disregard some of the very axioms of military science.

It would involve the writer in consideration quite foreign to the subject of this essay were he to suggest to what extent the opinions of experts outside the military profession should be consulted in matters closely dealing with purely military reforms, but there is no doubt that in promulgating any great reform the matter involved may be viewed from many more aspects than the section of society which the reform most nearly affects is willing to admit, and, were this the general practice, the wholesale assimilation of fads or the reckless demolition of long-standing institutions or ideas would take place less generally. If therefore the champions of reform would pay respect to the theoretic idea and to truly scientific criticism, changes that cannot stand the test of time for more than a few years would more rarely come into being.

The infatuation which drove the military authorities about the year 1800 to largely recruit Brahmins was proved by subsequent events, culminating in the Mutiny, to have been just as ill-considered as the singular and hitherto apparently unaccountable prejudice which permitted the war-worn and glorious old Coast Army at the end of the Burma War in 1828 to rot away in neglect, so that, when called out again in 1885 to take part in the Second Burma War, it experienced a variety of ignominious rebuffs.

That this army of Madras-recruited sepoys was, at the end of the First Burma War (1828), by far the most valuable asset in the whole of our fighting forces in India is a fact beyond dispute, and in this connection the following extracts from a minute by Lieutenant General Sir George Townshend Walker, then the Commander-in-Chief at Madras, are not without interest:—

“.....when it is considered that this Army has, for a series of years past and particularly during the Burmese War, sustained the greater portion of the fatigue and harassing duty of carrying on extensive field operations and foreign service in India with such limited numbers as scarcely to admit of common repose to the troops during the last twelve or fourteen years, and that it is an Army almost without exception of regulars, having neither local ‘sebundy’ corps to take the duties of fatigue and insalubrious stations, the Government will not expect that I can recommend any extensive reductions in a force that I consider already under the proper numerical strength.....This Army has, it must be admitted, made great and laudable exertions both by sea and land: the severity of service and privations endured by the troops on foreign service are already on record, and I have now to inform the Board that so severe was the duty at that period that few corps on the home station had more than two reliefs, some not even that.....This Army furnished 18 regiments of Native Infantry for the late service in Ava, but this exertion reduced the remaining corps to the state I have described of almost constant duty, and the rebellion at Kittoor following left our cantonments empty, our garrisons very inadequately manned, and duty at all stations so severe as to try even the patience and endurance of the most acknowledgedly devoted and zealous men whose conduct in refraining from complaint is beyond all praise.

“These services, this zeal and fidelity won them all the Eastern Settlements of the Tenasserim Coast and Penang to garrison, with an addition of two regiments of Native Infantry, while the Bengal Army, whose services and claims it is not my duty or desire to discuss, obtained an increase of two regiments of cavalry, twelve of infantry, exclusive of irregulars and corps not regimented.

“Now to establish new regiments in the Bengal Army which was at that time, as compared with the Madras Army, practically without any traditions or even experience of war, was to violate one of the leading principles which govern military organisation, for hardly any student of the art of war would deny the truth of General

W. T. Sherman's remark, when he says :—'I believe that 500 new men added to an old and experienced regiment were more valuable than a thousand men in the form of a new regiment, for the former, by association with good experienced Captains, Lieutenants, and Non-commissioned officers, soon become veterans, whereas the latter were generally unavailable for a year.'

What were the reasons which induced the Government of that day to act in such a way as to call forth the above protest from the Madras C.-in-C. may never be known, but that the Madras Presidency and everything connected with it was, even in these days, looked down upon is fully established.

As early as 1791 we read of a petition to H. M. King George III drawn up by the officers of the Madras Army calling attention to the grossly unfair treatment they were subjected to by the Supreme Government, which not only showed an habitual preference for officers of the Bengal and Bombay establishments in making nominations for high appointments, but constantly subjected them to grave indignities. For instance, an officer of the Madras Army with 14 years' service was compelled on one occasion, for no other reason apparently than he belonged to that much-despised force, to place himself under the orders of a Second-Lieutenant in the Bengal Army, aged 16 !

Elsewhere it is on record that an officer commanding Madras troops stationed in Bombay petitioned the Governor of Madras to approach the Governor of Bombay on the subject of relieving his men from being compelled to perform all the fatigue and sentry duties of the garrison which under fair conditions would have been shared equally by all the troops in the station.

What must have been the effect upon the loyalty, devotion, and zeal of the officers and men thus deliberately insulted it is impossible to say, but the giving of a "bad name to a dog" generally shows little else than a contemptible attitude of mind on the part of the donors.

Tell a man you think he is a fool and a coward and unless he is a hero already he will probably not force you to eat your words the next time he is called upon to display his intelligence or indulge in an act of self-sacrifice.

Tell him, on the other hand, that you expect great things of him and you are half-way or further to making a hero of him in a crisis.

How then was it possible that these maligned and despised troops ever achieved any success at all ?

It is a psychological problem which the writer does not propose to discuss here. Let it suffice to say that these Madras sepoys were filled with a quite phenomenal affection for the service, which indicates that they were at least understood and appreciated by their own officers. That this was really the case is well evidenced by the following.

Sir Eyre Coote's despatches after the battle of Porto Novo in 1781 contain the following passage :—

"The behaviour of the whole Army on this most interesting day was uniformly steady and worthy of the highest commendation.....the spirited behaviour of our Sepoy Corps did them the greatest credit. No European could be steadier, they were emulous of being foremost on every service it was necessary to undertake."

Captain R. Gold writing about 1791 says :—

"Though the coast sepoys are frequently of small stature, they have a very soldier-like appearance, and from the high state of perfection their officers have brought them to by a strict discipline and study to make their lives comfortable they appear really attached to the service."

From Lord Wellesley himself unstinted praise constantly fell upon the Madras troops.

In 1803 after the battle of Gawilghur he "congratulated the troops upon the brilliant success of the day.....the gallantry with which the attack was made by the detachment under the command of Lieutenant-Colonel Kenny (*i.e.*, 2nd Madras Infantry) has never been surpassed."

In the records of the 21st Madras Infantry an extract of orders by Major-General Sir A. Wellesley, dated Camp, Poona, June 24th, 1804, runs as follows :—

"Upon the occasion of quitting the Army in consequence of the orders of the General Government, Major-General Wellesley once more returns his thanks to the officers and troops for their uniform good conduct since he has had the honour of commanding them. In the space of little more than a year those in this quarter in particular now composing the subsidiary forces serving with the Peishwar and Soubahdar of the Deccan and those who are under orders to march southward have been tried in every mode in which it is possible to try troops and have uniformly manifested that patience under fatigue and severity of climate, that activity and perseverance in labour, bravery and discipline in action which are the characteristic qualities of the best soldiers; their success and the honour which the troops have acquired are proportionate to the good qualities they have displayed, on which qualities Major-General Wellesley has always had the fullest reliance in every emergency of the service. He now recommends to them an adherence to the principles which have brought them with honour through so many difficulties as the certain pledge of future success."

The majority of Englishmen in India at the present moment would be astonished if they knew the exquisite sense of humiliation that the treatment of the Madras regiments has had upon the minds of thousands of men alive at the present moment, who were at one time either actually serving themselves in the Army or whose families have been conspicuous for many generations for loyal and distinguished military service.

That ignominious treatment by the Supreme Government failed to staunch the tide of loyal devotion among the Madras sepoys is well evidenced by the following extract from the records of the 2nd Madras Infantry :—

“on the general dissatisfaction and mutiny of the Bengal Native Army and Rebellion in Oudh in 1857 the native ranks of the regiment expressed through Lieutenant-Colonel Congdon, commanding the Regiment, their abhorrence and detestation of the faithlessness and hard-hearted cruelty and conduct of the Bengal sepoy, at the same time they begged to assure the Government that they remained faithful and obedient to the State and were ready to render their aid for the protection of those in authority should the Government be pleased at any time to call on them for assistance.”

This expression of loyalty was acknowledged in a General Order from Fort St. George, dated August 4th, 1857, No. 248, in which his Lordship in Council requests that the thanks of Government may be conveyed to the N. O.’s, N.-C. O.’s and men of the 2nd Regiment Madras Infantry.

It is impossible to do more than quote a few passages culled at random, to testify to the high state of military efficiency the Madras Army had attained between the years 1766 and 1828, but the following should afford ample evidence that at one time in our history the now much-despised Madras sepoy was as useful, loyal, obedient and competent a mercenary soldier as history can produce.

The following occurs in Mackenzie’s History of the Siege of Seringapatam in 1792: “They (the Madras sepoy) fired by platoons with a regularity and steadiness that would stamp credit on the best troops in Europe, on being reasonably reinforced by Captain Hunter’s division, the whole body came to the bayonet and after repeated charges proved successful.”

Colonel Welsh in his “Reminiscences” (1831) writes as follows of the Madras Pariahs who appear to have been in those days, as they are now, the backbone of all Madras regiments :—“The Pariahs..... brave, active, and attached as they were to their officers and the service, with a few European failings such as dram-drinking and eating unclean meats, have of late years been excluded from the line in order the more fully to conciliate the higher classes who, however they may differ from each other in many points, are all united in considering any mixture with these as a contamination.”

Again: “Although the men obtained in the more southern countries are much inferior to the northern recruits in caste, size, and appearance, they are nevertheless hardy and thrifty, and being less subject to local attachments and little encumbered with religious habits or prejudices to interfere with the regular performance of their duty are found to stand the pressure of military hardships with much fortitude and to manifest at all times a firm adherence to the service.”

In a letter dated 1782, to the “Board of Directors,” the following description of the Coast Army occurs:—“It appears to me that

upon a general comparison the discipline of the coast troops is infinitely superior to that of the other Indian establishments I have already spoken (*i.e.*, those of Bengal and Bombay).

"The Carnatic has been almost constantly the theatre of war, consequently its troops have been on constant service and I may add sometimes opposed to very active enemies. Their military appearance under arms, their precision in manœuvres and the attention on duty of many of their battalions do them infinite credit. These sepoys are not generally men of high caste. Their religion does not interfere with any part of discipline. They are hardy little men and undergo severe duties with cheerfulness. Their courage is more an effect of discipline and confidence in their European Officers than the fire of innate prowess."

Now it has often been said that the bravery and fidelity of the Madras regiments in the early days was due to the fact that they were composed almost entirely of Mahrattas, Rajputs, and Punjabis and that when they began to be recruited entirely from the Carnatic races they were proved worthless. This view is entirely incorrect. An examination of the records of the old Madras regiments shows that their composition was very mixed but was, within limits, fairly constant. The following table may be taken as fairly typical :—

Madras: Mahomedans	...	...	...	30 per cent.
Telugus	...	...	50	"
Rajputs or Brahmins	...	...	8	"
Mahrattas	...	...	1	"
Christians	...	...	8·4	"
Other castes	...	...	0·8	"
Tamils ? Pariahs)	...	...	0·5	"
Indo-Britons	...	...	0·5	

There is no doubt that Rajputs and high caste Hindus were enlisted whenever they could be obtained and, in order to conciliate them, the Pariah, although greatly appreciated by his British Officers, was disengaged. Nevertheless there is evidence to show that a considerable number of Pariahs and other low caste men were serving in the Madras Infantry battalions between the years 1766 and 1817 from which it would appear that the sepoys who fought through the Mysore and Mahratta wars and gained the series of victories from Chengamah in 1767 to Mahdipore in 1817 were largely recruited from the classes now found in considerable numbers in the Sappers and Miners.

We have now seen what the sepoys of the Madras Army in the olden days were like, let us now proceed to consider what they still might be if they were given a measure of fair treatment and accorded due recognition of their services in the past.

That the Madras Infantry regiments are nowadays considered practically valueless for active service finds its official expression in the fact that they are the only regiments in the Indian Army which have no war establishment and only a peace strength of 600.

That as a result of this both officers and men have, with very few exceptions, lost all pride in themselves and their achievements is patent to anyone who has been associated with Madras troops.

That this lamentable state of affairs is remediable (and who could wish it otherwise ?) is fully evidenced by a reference to the Madras Pioneer regiments and the corps of Madras Sappers and Miners.

Here we have precisely the same type of man as exists in the infantry but, owing to a studious cultivation of past traditions coupled with a first class training administered by very able and zealous officers, these troops have never failed to reap distinction.

The prestige and *esprit de corps* of these Pioneers and Sappers have grown and flourished without interruption, and they have never been allowed to stagnate and acquire the notion that they are incapable of performing the duties required of them.

There is probably no body of men in India which has such implicit confidence in its power of being able "to go anywhere and do anything" as the 2nd Q. O. Sappers and Miners, with the result that it never undertakes anything that it does not successfully carry through.

Of this famous corps Lord Wolseley wrote :—

"The best native soldiers taking them all round whom I ever served with in India were the Madras Sappers. Their coolness under fire, indifference to danger, their discipline and their pride of regiment, make them out on all occasions as first rate soldiers."

THE GENERAL STAFF IN FRANCE AND GERMANY.

BY CAPTAIN V. E. MUSPRATT, 30TH LANCERS.

In view of the introduction of the General Staff in India, three articles on the General Staff in France and Germany, which appeared recently in French military journals, are of interest. All three articles were contributed by anonymous writers.

One article, entitled "The Career of the German General Staff Officer," which appeared in the "*Revue Militaire des Armées Etrangères*," of November 1910, dealt at some length with the career of the *Generalstübler* from the time he first competes for the Staff College until the end of his service, and showed how thoroughly his work and training are calculated to fit him for his duties in war. The article also brought out forcibly the double rôle of the German Great General Staff, *viz.*—(1) preparation for war in its widest aspects; and (2) that of centre of instruction for all officers of the General Staff and, through them, for the whole army.

The other articles, which appeared in two consecutive numbers of the "*Journal des Sciences Militaires*," of December 1910, were entitled "The General Staff" and "The Reorganisation of the General Staff." These deal with a scheme recently brought forward by the Minister of War for the reform of Command and Staff in the French Army. The scheme aims at freeing Commanders and General Staff officers from the present mass of routine work and enabling them to devote their energies to preparation for war: a "centre of instruction" is to be formed for senior officers, and 110 officers (not Staff College graduates) are to be appointed to the General Staff for routine work. While admitting the soundness of the principles of these proposals, the two articles criticise their application, particularly as regards the proposed introduction of 110 officers into the General Staff and the inadequacy of instructing only 20 officers annually when compared to the system in vogue in Germany.

It will be convenient to take "The Career of the German General Staff Officer" first, as the other two articles, dealing with the French General Staff, frequently refer to the organisation, working and aims of the General Staff in Germany. The object of the article was to consider to what extent the career of General Staff officers can contribute to develop the qualities necessary to fit them for high command, and, with this aim, it traces how officers are recruited for the General Staff in Germany, follows them closely throughout their career, and sets forth the duties that fall to them.

Before being allowed to compete for the Staff College, officers have to be reported on by their commanding officers as having the highest physical and moral qualities: the competition at the entrance examination is severe, about 700 candidates for 160 vacancies.

Officers spend three years at the Staff College. In the Staff College course general education holds a relatively important place, while the military studies proper aim at showing the students the lines on which to work in order to assure *unity of doctrine*.

On leaving the Staff College officers return to their own corps. After some months those who have been reported on as suitable for service on the General Staff are called up to serve a tour of probationary duty on the Great General Staff at Berlin, where they are attached at first for one year: the number taken varies little, it is usually about 55 or 60 out of each batch of 160. Their length of service as officers, at this period, varies from $7\frac{1}{2}$ to 16 years.

These officers are placed in the various sections of the Great General Staff and instructed in their duties. At the same time their military education is continued in a very thorough manner by means of tactical schemes: these schemes gradually take a larger scope, the final ones being directed by the Chief of the Great General Staff in person: these latter have also, as their object, the propagation amongst leaders of high rank and throughout the army, of the Chief of the Great General Staff's conception of the conduct of war and leading of armies. Officers on the General Staffs of army corps divisions and fortress commands also participate in these schemes.

Besides these tactical schemes the officers attached to the Great General Staff have also to study in special schemes the working of lines of communications, questions of supply, etc., to take part in General Staff tours and to furnish reports and studies on military subjects.

At the end of the first year on the Great General Staff a selection is made: some, a very few, are chosen to be definitely placed on the General Staff as Captains, others are appointed to the "Adjutantur" (as the Administrative Staff is called in Germany), or made instructors in military schools: others are sent back to their regiments, gaining certain advantages in promotion: but the larger number, over 40, too young to be promoted Captains, are told off to do a second year on the Great General Staff at Berlin, at the end of which a selection is made as before, while a dozen, on an average, are kept for a third year on the Great General Staff. Altogether, 20 or 25 at the most—the seventh or eighth part of each batch at the Staff College—are finally appointed to the General Staff.

An officer leaving the Staff College is never, in Germany, sent straight to a General Staff with troops, and, before holding any General Staff appointment, he must be thoroughly imbued with the spirit of the Great General Staff. With three years at the Staff College and one, two or three on the Great General Staff he is from four to six years under the same influence, which, as will be seen, continues to make itself felt throughout the General Staff officer's whole career.

The Staff College is not indispensable to reach the General Staff: an officer may make his aptitude known by other means, but few reach the General Staff in this way, they form the exceptions which prove the rule.

At the end of his tour of probationary duty the General Staff officer, who has just been rewarded by promotion to the rank of Captain, may either be ordered to remain on the Great General Staff at Berlin, or be appointed to a General Staff with troops, as junior General Staff officer with an army corps. Most of the young *Generalstabler* endeavour to go to an army corps: all, however, have eventually to serve on a General Staff with troops.

Officers on the General Staff with troops, in the same way as those on the Great General Staff, deal solely with questions relative to preparation for war: they escape all routine work which is done by the "Adjutantur": it is this division of work which allows Germany to have a comparatively very restricted number of General Staff officers. An army corps has a Chief of the General Staff and two or three General Staff officers, and two or three officers of the "Adjutantur": a division has only one General Staff officer and one officer of the "Adjutantur," while a brigade has no General Staff officer, only one "Adjutantur" officer.

The work in an army corps command is divided among four sections, as follows:—Section I, General Staff. Section II, Adjutantur. Section III, Military justice. Section IV, Commissariat, medical, veterinary, and ecclesiastical. Section I comprises two or three General Staff officers, and deals solely with questions relating to preparation for war, *viz.*,—marches, exercises and manœuvres, reconnaissance of manœuvre grounds, General Staff tours and tactical schemes, mobilisation, transport by rail, political questions, foreign armies, tactical instruction of the different arms, questions of military organisation, armament of fortresses, maps, reconnaissances, winter tasks of officers and questions relative to the improvement of their education. Section II, composed of two or three officers of the Adjutantur, deals with all matters of routine.

This division of work, between Sections I and II is neither absolute nor invariable: it can be modified by the General Commanding the army corps. An exchange of work between the sections tends to enlarge the knowledge of the officers: the occasion comes about of itself, when it is necessary to replace an officer absent on leave or sickness, or when an appointment is temporarily vacant. In the division, with only one General Staff officer and one of the Adjutantur, it happens fairly frequently, and will be the same on service. As regards the "Adjutantur," there are no hard-and-fast rules for the selection of officers, some have been at the Staff College, others are chosen from officers who have been Adjutant of their regiment or battalion.

On joining an army corps, the young General Staff officer deals with the less important questions of Section I, the more important, *i.e.*, mobilisation and manœuvres, being dealt with by the senior General Staff officer: he is also a sort of assistant to the Chief of the General Staff of the army corps, whom he helps in the instructional work of the winter season and in the preparation of the

General Staff tour, he sometimes accompanies the G. O. C. army corps on inspections, exercises and manœuvres.

As regards the army corps General Staff tour: all the General Staff officers in an army corps, whether employed on the General Staff or doing regimental duty, take part in the tour, as also do young officers attached to the Great General Staff, sent from Berlin, officers of the "Adjutantur," and a certain number of regimental officers (particularly those who awaiting re-employment in the Adjutantur and certain officers to whom it is intended to give accelerated promotion). Formerly these army corps staff tours dealt in detail with the staff work of a division or army corps, nowadays the scope is enlarged, too much so perhaps, and generally embraces the operations of an army.

While on the staff of an army corps the General Staff officer does not lose touch with the Great General Staff, being recalled for short periods to Berlin to take part in tactical schemes and other studies.

At the end, on an average, of two or three years on the General Staff of an army corps, the General Staff officer usually returns to regimental duty to take command of a company, battery or squadron, according to his arm of the service. No precise rules are laid down as to the length of this tour of regimental duty: in principle, however, every General Staff officer does duty with troops in each successive rank. The majority of General Staff officers generally do three years as Captain in command of a unit before returning to the General Staff.

If re-appointed to the General Staff after his period of command as a Captain, the General Staff officer can be either appointed to the Great General Staff at Berlin or to a General Staff with troops; in the latter case he is, if possible, appointed to a division: there being only one General Staff officer in a division this appointment is much sought after. The holder has little to do with mobilisation questions, which are dealt with in their essential portions by the General Staff of the army corps, but the training of troops and inspections offer a large field for his energies.

It is usually at this period that promotion to the rank of Major comes to the General Staff officer. His promotion to Captain has already been accelerated by one or two years, and on promotion to Major, he usually gains, in all, four years over other officers. (In the Army List for 1910 there are a certain number of Majors, all on the General Staff, whose first commissions as officers are dated 1890, and who have gained six years over their comrades in regiments.) Henceforward the General Staff officer is assured of keeping the start he has gained, since promotion, above the rank of Major, goes by the list for the whole army, and not by the arm of the service.

As Major, the General Staff officer, if he does not remain in a division or is not employed on the Great General Staff, is appointed to the General Staff of an army corps, where he deals mainly with manœuvres and mobilisation: at the end of some years he returns to regimental duty to take command of a cavalry regiment or battalion.

The majority of General Staff officers, at this point terminate their career on the General Staff, but those who are thought particularly highly of return again subsequently as Lieut.-Colonels or Colonels to the General Staff, either as heads of sections in the Great General Staff or as Chief of the General Staff of an army corps.

Before becoming a Major-General, a Chief of the General Staff of an army corps has to vacate the appointment to command a regiment (in Germany three battalions), and his career on the General Staff is ended, save in the exceptional case where he returns to the Great General Staff as an "Oberquartiermastier" (sub-chief of the Great General Staff) or as Chief of the General Staff of an army.

The article concludes by pointing out that the General Staff officer throughout his career performs, in his diverse appointments, a variety of duties, but all tending by their very nature to develop his education and military qualities, and, owing to constant contact with the Great General Staff the *doctrine* remains one. The General Staff officer is rewarded for constant effort by the feeling of duty done and by positive advantages in his career, and, owing to his training and accelerated promotion, the General Staff officer has far more chances than others of attaining high command: passing through the Adjutantur or performing certain special duties may help an officer, but in a far smaller degree than service on the General Staff.

On the occasion of the centenary of the Staff College several German newspapers recalled the fact that the majority, if not all, the best military leaders to whom Germany owed her successes of 1864, 1866 and 1870-71 had acquired the basis of their military education at the Staff College, and had afterwards perfected it by the very performance of their duties on the General Staff.

To turn now to the French Army.

The French Minister of War has recently brought forward certain schemes of reform, these aim at—

- (a) assuring to the Army, leaders vigorous in body and mind by sending Generals unfit for active service to pension, and by the formation of "a centre of high study" where 20 senior officers annually are to go through a course lasting ten months;
- (b) the introduction into the General Staff of 110 officers (all to be officers who have not been through the Staff College) to do routine work and thus free the Staff College graduates on the General Staff for their proper rôle of preparation for war.

It is pointed out how closely questions of command and General Staff are connected, and further how the former is recruited, mainly from the latter: it is therefore logical to obtain practical and lasting results, to improve the conditions of the formation and working of the General Staff at the same time as those of Command: both these organs should aim solely at preparation for war.

These principles are obviously sound, it is their application that it is proposed to examine.

Moltke was fond of saying that if the French, after the disasters of 1870-71, had reorganised their army and means of war, Germany would still retain the unquestionable superiority of her General Staff, a superiority attributed to the regulations for recruiting the officers of this service and keeping them up to the mark. In spite of rigorous selection for the General Staff the German Officer would not fail to lose his war value if he did not deal, in office as well as in the field, with studies calculated to develop it.

It is not considered that the officers leaving the French Staff College are inferior to those of the *Kriegssakademie* at Berlin, it is a question, rather, of what becomes of the officer when he is on the General Staff. At present the French officer, once he has passed the Staff College, does a probationary period of two years on the General Staff, other than the General Staff of the army (which is the French Great General Staff), at the end of which, except in rare cases, he is declared fit for service on the General Staff. After this he serves either on the General Staff of the army, or on the General Staff of an army corps, division, brigade, or fortress command, and does regular periods at regimental duty. But, to whatever Staff he belongs, he is not freed of routine work or current business, as is his colleague in the German army by the "Adjutantur": at the best he may find, in the recordkeeping officers of the General Staff, few in number, assistants capable of helping him in this exacting task, to which he has to devote the greater part of his time.

Every one deplores the position of the Staff College graduate in the present organisation of the General Staff: in Parliament, in the daily press, in military, and even public journals, the evil has been frequently pointed out. When the General Staff officer's whole energies should be concentrated on his duties in war, this portion of his duty is now considered as accessory: yet the well-being of the troops and the proper execution of the leader's intentions depend on his quickness in interpreting his Chief's thoughts, his facility in drawing up orders, and on his foresight and method, all qualities requiring constant exercise.

A Regulation published in 1895 recommended exercises on the map and ground, reconnaissance, and participation in manœuvres: this is carried out, but little or not at all, for the good reason that, from the Chief of the General Staff of the army down to the last joined officer on probation, everyone is absorbed in the daily mass of papers which allow no leisure. As to the Generals, they are usually more occupied with current business and complaints of reservists than with tactics or manœuvres.

Again, the General Staff officer is not enough with troops. It is only by the exercise of command that an officer can prepare himself for the difficult rôle of leader in peace or war. Regimental officers are apt to abuse this fact and say that they have as much right as the Staff College graduate to be selected for the course of high

study. "In reply," says the author of *l'Etat-Major*, "it may be said that character is inborn, and that those who by temperament dislike initiative, hard work and responsibility, will not get a taste for it as they grow older. On the other hand, all the Staff College certificates in the world will not make a leader of men."

Further, every General Staff is inclined to specialise and shut itself up within itself, without communicating with troops or neighbouring staffs, except on current business. The General Staff of the army, particularly, tends to become a General Staff apart, the members of which are but rarely changed. It does not provide for the whole General Staff the centre of high study which gives it such an important status in Germany: at present it only directs the general instruction of the army by means of notes and circulars, not by work in common.

It cannot be denied that efforts at reorganisation in France at the present time are inspired, in their principles, by the experience of their neighbours beyond the Vosges.

The French seek to imitate the centre of study formed by the German Great General Staff by calling up to the Staff College every year for ten months, 20 senior officers (who may be Staff College graduates or not) recommended by commanders of Army Corps. This course is under the direction of the Chief of the General Staff, and officers on the General Staff of the army are charged with carrying out the conferences, tours and various exercises. The fixed and extremely limited number of officers to be called up each year detracts from the value of this scheme.

It is proposed to give the French General Staff the possibility of preparation for war, which is assured to the General Staff in Germany by the "Adjutant"; to leave General Staff officers longer with troops; and to give routine work to officers who have not passed the Staff College. By the terms of the regulation on this subject, "the number of officers employed on the General Staff will not exceed 640 on a peace footing, i.e., 70 Colonels or Lieut.-Colonels, 170 Majors, 400 Captains, of whom a maximum may be 10 Majors and 100 Captains who have not passed the Staff College (these 110 officers to be employed on routine work)."

Such is the scheme, but it is open to question whether the progress likely to result from it will be sufficient to put the French General Staff on a thoroughly sound basis.

As regards the fundamental question of the organisation of the General Staff. It ought to be recruited from Staff College graduates who show themselves, both during their probationary period and on the General Staff, fit to serve on it. An increase in the number of Officers attending the Staff College has often been demanded, so that it will not be necessary for every Staff College graduate to serve on the General Staff, as is practically the case at present.

The introduction of officers who are not Staff College graduates to do routine work will result in reducing the number of Staff

College graduates appointed to the General Staff, and thus enable a more rigorous selection to be made. But it still seems that 10 Majors and 100 Captains (not *p.s.c.*) even when added to the officers now doing administrative work on the General Staff and recruiting officers, will not be sufficient, when the number of Staffs is considered, and the amount of routine work to be done. Again, where the General Staff of the army is concerned, it will be advisable to give most of the questions of detail of mobilisation and railways to specialist officers : these questions, as well as routine and accounts, require experience and a special bent.

When the scheme was first introduced there was a feeling of satisfaction throughout the army : the General Staff would at last find itself freed of routine : but it was soon seen that the measures proposed in the scheme had certain grave objections, which have already given rise to lively discussion. The following are the main points raised : they mostly deal with the introduction of the non-Staff College graduate into the General Staff, and the future position of the present "Administrative officer."

To what extent are the Staff College graduates to be freed of routine work ? Here opinions differ. Take, for instance, mobilisation, particularly those portions which deal with the classing and requisitioning of horses, and states and returns of personnel and matériel : in this sort of work, where should the jurisdiction of the General Staff officer end ? Some think that these questions are within the province of the General Staff, others that they are beneath their notice !

In organisation, recruiting and mobilisation, it is necessary to carefully lay down the general principles on which the work is to be done : the Staff College graduate, by reason of his training, which disposes him to see things from a broad point of view, should be charged with establishing the groundwork, but he should not pass most of his time in making out lists, plans of requisition, or organising the annual circuit of commissions for classing horses. It is waste of power to employ at this work young and vigorous officers, who have been trained at great expense for two years at the Staff College. In any case they should be completely freed from the administration of reserves, states of effective strength and matériel, and current business.

In this connection the name of the German "Adjutantur" has often been mentioned. This body cannot be compared with that of the French administrative officers. The "Adjutantur" enjoys its independence in juxtaposition to the General Staff : many of its members are recruited like the General Staff itself, from officers who have done three years at the Staff College, and who only differ from their comrades on the General Staff in that they have not completed the two or three years' probationary duty on the Great General Staff at Berlin. France is far from such an organisation. The constitution of a corps of "*officiers de bureau*" will not give it, though a step in the right direction.

Another difficulty remains. How will the General Staff, reduced (by the new scheme) in the number of Staff College graduates, work on service? Most of the administrative officers will remain in their places to carry out the mobilisation of the reserves. It must be remarked, however, that the French General Staffs have, on a peace footing, a much larger number of officers than the German.*

The measures to complete the General Staffs on mobilisation must be thought out beforehand. The Staff College graduates doing regimental duty are all ear-marked for this: if these have kept in touch with the General Staff, these changes should not cause any inconvenience.

Granting that the new scheme will, to a certain extent, remedy the present state of things by freeing the General Staff from work which has no connection with preparation for war, there still remains much to be done in the introduction of frequent contact between the General Staff with troops and the General Staff of the army. Such contact is shown, by the experience of a century, to be the backbone of the German General Staff, for it assures, by work in common and exchange of ideas, the unity of doctrine indispensable to the conduct of military operations. There is nothing of this kind in France, where everything in the nature of instruction has yet to be organised. A beginning should be made in Army Corps, where the General Staff ought to constitute a true intellectual centre.

The annual gathering together of the Chiefs of the Staff of Army Corps at the General Staff of the Army, which the scheme also provides for, is only a very hesitating step towards the progress to be aimed at. As many General Staff officers as possible should attend, not merely a few, and those always the same, as at present. Officers should go there for study in the principles of the art of war. The Chief of the General Staff of the Army would get to know his General Staff officers, which would enable him to employ them according to their aptitude, and to see to their advancement.

At this moment a campaign is going on in the Press on the subject of physical training for General Staff officers, as if the General Staff were an asylum for the infirm! It would do more good to give them an intellectual training, for, as General Schlieffen said at the centenary of the *Kriegsakademie* at Berlin—"if the commander of an army ought to be insensible to heat and cold, to want of sleep and food, he has also need of genius, and according to Moltke—genius is work. . . . it is study and work which lead to glory."

The article on "*La Réorganisation de l'Etat-Major*" concludes—“Why should this dream be so far from reality? The scheme which

* The German General Staff number 312 officers, this includes 32 Bavarian and 30 Saxon General Staff officers, and 12 Military attachés. There are also 69 officers (not General Staff officers) "attached" to the historical and railway sections of the great General Staff. The "higher adjutantur" comprises 406 officers. The French General Staff numbers 640, plus 180 administrative officers.

we have just discussed cannot change such a deplorable state of things. The principle is good : its application bad, because too timid. Perhaps we shall see a repetition of what happened some months ago *à propos* of the top 15 students at the Staff College : the idea of giving future General Staff officers a third year of study was excellent : is not the French Army one of the few where the course at the Staff College is limited to two years ? What a difference, be it noted, with the rigorously methodical selection of General Staff officers which prevails in Germany, where they are submitted to one to three years' test on the Great General Staff after their three years at the Staff College. Not only the first 15, but the whole batch, should benefit by this final instruction, except those officers who are manifestly inferior. If it had been presented thus, this reform would not have stirred up the general reprobation which has greeted it in public opinion and Parliament.

Does the same fate await the half-hearted measure which is now proposed ? Against it stands the fact that it does not satisfy anyone completely and gives cause for discontent to a whole body of officers. It gives us the idea that it is only, in some way, a probing stroke destined to sound public opinion, a compromise, a tentative measure too hastily considered for us to be able to hope for serious improvement. This can only come from a complete reorganisation of the General Staff, simultaneously with that of the question of the recruiting and promotion of officers which must be faced sooner or later."

1

NET STRETCHERS FOR UNITS IN MOUNTAIN WARFARE OR FOR UNIVERSAL USE IN MOUNTED UNITS.

By CAPTAIN E. C. TAYLOR, M.B., I.M.S.

I had heard last winter that a regiment in Quetta used a form of hammock stretcher, and as I could obtain no details of it I tried to make one for myself. The result is appended.

The stretcher consists of a single bamboo pole weighing 6 lbs. and a net weighing 4 lbs. When empty, the advantages of transport of this pattern are obvious.

When loaded, the advantages claimed for it are its suitability for hill work. Two men carry it on their shoulders (Fig. 1) and both men have a free view of the ground beneath their feet; they can, therefore, move quickly down hill. Being slung on a single pole it acts like a hammock and the patient keeps more or less horizontal without the bearers raising or lowering one end of the pole. The patient is secure and cannot roll out or slip up and down. The jolting is very much less than in an ordinary stretcher.

For cavalry work one sowar could carry the whole apparatus in addition to his rifle; the pole being in a suitable bucket and the net slung on the saddle.

Detailed description :—The apparatus consists of one pole and one net. The pole is an ordinary bamboo 10 feet 10 inches long and about 5 inches in circumference. 18 inches from each end a hole is bored to take the pin which fixes the end rope rings in position and keeps the net on the stretch.

The net (Fig. 2) is made of ordinary $\frac{1}{2}$ inch twine netted in the ordinary way. It is rectangular of 3 inches mesh and with twelve meshes in breadth and fifteen in length. Each end is laced by a twine band (forming loops 12 inches long) to a rope ring (Fig. 3). These rings carry pins for fixing them in position on the pole. Three pairs of rope rings are attached opposite each other at intervals on the sides of the net, the outside twine of these meshes being wrapped to prevent fraying (Fig. 4).

To adjust the stretcher the net is placed under the patient; the pole is then passed through one end ring, then through left and right side rings alternately, finally through the other end ring. The pins are then inserted and the stretcher is ready for lifting. Total cost of material about Rs. 5.

REVIEWS.

Etudes sur la Guerre.—By Lieut.-Colonel Montaigne, of the French General Staff. (346 pp.—Librairie Berger—Levrault, Paris, 1911.)

This, a powerful and well written book, is an exhaustive enquiry into modern war, and, particularly, the modern battle: its main object is to prove the value of *moral* in war. "The human factor," says the author, "dominates war, but the study of *man* is nearly always omitted in works on war."

The book is divided into four main "studies." The first is entitled "Man and Fear," and is divided into two chapters, "Fear" and "Against Fear." In the former some thirty instances are given of troops being seized with fear or panic, and also extracts from Clausewitz, Tolstoi, and many other soldiers and writers on the effect of fear on the human mind. In the second chapter the various instincts which tend to combat fear are discussed—the fighting instinct, discipline, patriotism, *esprit de corps*, example of officers, the power of the offensive, education and religion. The two chapters, though interesting, are long and of a somewhat academic nature.

In the second study the author examines the doctrines on the battle which are in vogue at the present time in France and Germany, and criticises them in the light of the Napoleonic conception of the battle. This is the most interesting study of the whole book. In the case of France, the doctrines of General Négrier and General Langlois are first discussed. Colonel Montaigne describes the usual form of battle in the South African War, and deduces tactical lessons therefrom, which, he says, are those which have inspired General Négrier in his conception of the modern battle which is then given.

General Langlois opposes General Négrier's theories and stands up for the "Official" doctrine, as exposed in the "Decree on the handling of armies on service" of 1895, which, further, is the modernised expression of the Napoleonic doctrine.

General Langlois, in his work "Lessons of two recent wars," is severe in his remarks on the British in the South African War, who, he says, violated all the rules of the science of war: he denies that the lessons of that war which General Négrier uses to support his theories, are in any way correct. General Langlois advocates an army advancing with its main columns fairly close together in a "lozenge formation," ready to face the enemy in any direction, each column covered by its own advanced guard: in front of the army move detachments of the three arms, whose mission is to establish contact and tear aside the veil covering the enemy.

General Langlois, wishing to prove the value of his methods, had a scheme worked out on the map, in which four army corps took

part on each side, the Northern army advancing on the system advocated by General Négrier, the Southern in the "lozenge" formation of General Langlois. The latter claims that his system was proved the best, but the scheme and its sequel do not seem very convincing.

Colonel Montaigne then goes on to discuss the French Official doctrine, as set forth in the Decree of 1895. He describes the army's advance, the battle and pursuit, and then points out that the "special regulations for manœuvres" for infantry, and also those for artillery published since 1895, differ in certain important respects from the Decree of that year.

We then come to the German doctrine. After referring to the differences of opinion which existed in Germany between what are termed the "formalists" and the "new school," Colonel Montaigne proceeds to describe the battle according to the German doctrine as shown in their regulations of 1906, *viz*:-

The army is covered by a triple network of troops, with the following aims:—to penetrate the enemy's secrets—hide their own—guard against surprise. The Commander-in-Chief is determined on battle: to formulate his plans he is inspired by the general situation: he does not expect, and therefore does not wait for precise information. He is determined on the offensive. His decisive manœuvre aims at envelopment, to cut every line of retreat of the enemy: he keeps no reserve in case of retreat, he engages resolutely for victory: and, to crown all, the pursuit—"furious, implacable, taking no count of men who fall from exhaustion any more than the battle has taken count of men falling under the enemy's bullets." It is not sufficient to force back the enemy and capture positions: the enemy must be annihilated.

The author then makes observations comparing the French and German doctrines, and scathingly criticises the former: He says—"I repeat and I insist that—

For the Germans, war is a divine order.

For the Germans, its aim is annihilation.

For the Germans, it must be carried out with the united forces of the nation.

For the Germans, there is only one way of making war—the offensive, everywhere and always, the strategic offensive which throws the army at the enemy's army: the tactical offensive which hurls the soldier at the enemy's soldier."

He then quotes extracts from the French regulations—"the aim of the battle is to break by force the enemy's will"—"fire and forward movement to oblige the enemy to give ground and retreat, *supreme effort of all our efforts and devotion*"—"the offensive implies the firm wish to close on the enemy and chase him from his positions"—etc., etc., and to all this empty rhetoric, says Colonel Montaigne, the Germans reply—*annihilation*.

The Napoleonic battle is then described. This was, in fact two battles: the first the battle of preparation, fought by Napoleon's lieutenants with a minimum of force, to hold the enemy, reconnoitre

his positions and decide the point of attack. The second, led by Napoleon in person, the battle of decision, for which he concentrated all available forces, kept no reserves, and brought about the enemy's destruction by a single blow.

In examining the French and German forms of battle Colonel Montaigne says—"the German battle approaches the Napoleonic battle more closely than does ours, both in the form and in the spirit : their doctrine is nearer the true doctrine : their warlike thought and offensive spirit are superior to ours."

The third "study" is entitled "A special conception of the battle :" here the author proposes to study the battle by taking as a basis the means and end of war. War has two sides : the first has the weapon for its basis, and varies with it : the second depends on the human heart, and, like the human heart, does not change. "Let us therefore examine," he says "the weapon and the man."

In the chapters on rifle fire it is stated that for thirty years the respective merits of individual and collective rifle fire have been argued over : the latter is favoured by the majority and is practically official. The supporters of collective fire advocate no firing at long ranges, the true fire combat should take place at medium distances, 800—500 metres, at close ranges individual fire should be used. (The fact is apparently overlooked that it will hardly ever be possible, in the face of modern weapons, to advance to within 800 metres of the enemy without opening fire.)

The French and German views on the subject of rifle fire are practically the same, both neglect precision of fire for a mass of lead, and only allow individual fire on rare occasions. They differ in the employment of ground : attention to cover and use of ground is almost minute in France, but nearly disregarded (according to Colonel Montaigne) in Germany.

Colonel Montaigne sides with the minority and favours individual fire. He denies that the individual shooting power of the French infantry is not capable of improvement, he objects to the official view that it is no use having good individual shots : the present rifle is an arm of precision : a firing line is not counted by the number of rifles it contains, but by the individual value of each firer.

The battle, enveloping and counter-attacks, the pursuit, night attacks and the use of railways are discussed. The author has long advocated night attacks, which, productive of panic, are in his opinion the true form of decisive attack.

When speaking of the battle and pursuit, the value of *moral* is strongly urged, and indeed is repeated again and again throughout the book. "Great leaders," says Colonel Montaigne, "did not recognise half victories or half defeats—Zama, Austerlitz, Waterloo—this is war, the rest is only a caricature. The fear of losses in war is immoral." He objects to a retreat, in however orderly a manner it may be carried out : there should be no alternative but victory or rout—the same shame should attach to retreat as to capitulations.

He admits that in history vigorous pursuits have been rare, they require a leader with a will of iron—Napoleon after Jena; or troops animated with an implacable hatred—the Prussians after Waterloo.

There is an interesting note on the subject of the employment of railways in war. Railways, says the author, are a powerful element for the strategic offensive, and, if perfected, for the tactical offensive also: their full power has never yet been realised. But at present the value of railways is limited, as animals, material and guns can only be detrained at permanent masonry platforms, whose position is known to the enemy, and thus any chance of effecting a surprise is small. If, however they could be detrained anywhere the power of railways would be enormously increased, and a purely strategical tool would become a valuable tactical tool also.

Three suggestions are put forward to enable troops, animals and material to be detrained anywhere:—

- (1). Construct lighter ramps than those now in use, or have the sides of trucks made so as to let down and form a ramp.
- (2) Connect all the trucks by a "flying bridge" obtained by lowering the ends of trucks, and thus transform the train into a sort of long platform, unload from the end truck on to the line, within reach of a road or track which will permit the immediate removal of what has been unloaded. One ramp placed at the end of the train will suffice—(this method was used by Barnum on the train carrying his circus).
- (3) Have the floor of the truck made so that it can be lowered to the level of the ground. (Colonel Montaigne had this idea worked out in 1899 by a Civil Engineer, but the Committee on inventions for the army did not consider it practical).

The note concludes with the remark that these suggestions would probably be welcomed in England—"always afraid of a *coup-de-main* which will throw an expeditionary force on her coasts."

The last study, "The Science of War is a Moral Science" is more or less a repetition of what has been said before as to the value of the moral over the intellectual and material sides of war.

Colonel Montaigne scoffs at the idea of universal peace—how can there be universal peace, he says, with Germany, Austria, Italy and England in emulation of each other: with Egypt and India dreaming of national independence: Japan extending her territories, and China, with its 400 millions, endeavouring to form an army. He exhorts his countrymen to turn a deaf ear to those who write against war or who oppose the sacred duty of fighting for one's country.

In speaking of the preparation of the nation for duty and sacrifice he says the duty of mothers and schoolmasters is plain. The future of France lies in their hands. They are the sowers, the nation is what they make it. The army cannot efface in two years the training of twenty, and re-make a man.

The book concludes with some principles and maxims, which leave no doubt as to the author's views on the value of courage, patriotism and self-sacrifice in war.

Owing to her declining birth-rate France finds it more and more difficult to keep pace with her neighbour, and is consequently straining her utmost to bring her army up to the highest possible pitch of efficiency, and the views of earnest writers, like Colonel Montaigne, cannot fail to be of interest to us, who may in the near future find ourselves allied to the French in a general European war.

Cavalry Reconnaissance.—By Colonel W. W. Normar. London, Hugh Rees, Ltd., 3s. 6d.

Cavalry Reconnaissance by Colonel Norman, 22nd Cavalry, has been written with the idea of assisting young Cavalry Officers to study reconnaissance and to help instruct their men.

The principles as laid down in the training manuals are exemplified by various incidents taken from campaigns which may serve to lighten the work of officers when lecturing to their troops and squadrons. The opening examples are taken from the days of Julius Cæsar down to the surrender of Stanhope, when England played a somewhat inglorious part in the wars of the Spanish Succession. They all show how important information is in war if success is to be looked for. It is perhaps a pity that more recent campaigns were not taken to bring out the necessity for information, as it is possible in more recent wars to trace the actual orders under which information was sought for. A close study of orders and of the ground, as well of the general situation, is necessary to all patrol leaders if they are to deduce the true lessons from the difficulties, errors, and successes of former patrol leaders.

It is only by intimate study that leaders can fully understand and appreciate the difficulties which surround a patrol at every turn. It is by the observation of the good work, as well as of the faults of former patrol leaders, that young officers may learn much. But to learn to its full value it is essential that an intimate knowledge of the situation should be first obtained. Otherwise a wrong appreciation of the situation is formed and the true lessons are not deduced.

Carefully comparing the movements of one patrol with another, the men of the squadron can be made to appreciate and understand the work of each individual forming a reconnoitring detachment. Thus all learn not only the need for information but how best it may be obtained, and transmitted, and how pitfalls may be avoided.

Chapter III dealing with the order of battle, characteristics of commanders, spies, hostile plans, etc., is interesting reading and tends to bring prominently before officers the need of understanding wide issues in war, and shows how small straws may indicate the direction of an army and emphasises the fact that even "straws" should not be passed by unheeded and unreported on. The need

of teaching officers to differentiate between what is necessary and what is unnecessary in a report is dealt with, but although emphasis is laid on the necessity for clearness, the complete elimination of all information already obtainable by use of maps, etc., is not too clearly brought out. It is only by complete elimination of existing knowledge, and by close attention to the matters in hand, that accuracy and rapidity can be secured in the time available for the compilation of the ordinary report.

More space might be devoted to the question of the relief of patrols when in contact with the enemy; a detailed consideration of this point would have added greatly to the value of the book, it is dismissed in a few lines, and yet it is one of the most difficult problems when the cavalry are acting over a wide front. There are however useful points for patrol leaders. Chapter V may be read with interest by all subaltern officers. The telling off a squadron as advanced guard, etc., as recommended on page 175 cannot be regarded as anything but a retrograde step. The necessity for every commander to use his common sense is avoided by this method, and we are stepping back into the errors of the pre-Boer War if we adopted this system. The book as a whole can be recommended to Cavalry soldiers, who are desirous of studying reconnaissance. Much thought and care by two Cavalry soldiers, Colonels Norman and Kenny, has been expended on its compilation and its price 3/6 is not excessive if by its aid the lectures to the rank and file can be lightened, and rendered more instructive.

*Sketch Map to illustrate the Afghan War, 1878—80, with Notes and References.**

Messrs. Forster Groom and Co. have now published the tenth of their Whitehall series of military maps. The new issue illustrates the second Afghan War, 1878—80, a period which has been selected this year for the examinations for admission to the Staff Colleges at Camberley and Quetta. The map shows the whole theatre of operations, and the routes followed by the various columns. Students will find this map very useful for following the course of the operations. Flags to represent each army are provided with the map. The map is accompanied by a short summary of the war, and a chronological table of events, with notes on the same, by which the progress on the several lines of operations can be seen at a glance. There is also a summary of special points for students to remember. Although opinions may differ as to which of the many lessons to be learnt from this war are the most important, yet the points noted in the pamphlet are well selected, and worthy of consideration. The pamphlet and map are in a convenient form, and they should afford valuable assistance to students, either when studying the more detailed accounts of the war, or for refreshing the memory by running over its chief points.

*Forster Groom Co., Ltd., Naval and Military Publishers, 15, Charing Cross London. 2/6.

Lord Roastem's Campaign in North-Eastern France.—By Lieut.-Colonel Alsager Pollock. (*Hugh Rees, Ltd.*)

In this short study, written by the editor of the United Service Magazine, the United Kingdom is assumed to be in active alliance with France against the Germans. The French are again the victims of superior German mobilisation, and have been forced to surrender a considerable tract of territory before being able to show front to the enemy on the line La Fère-Chaumont. The French line is prolonged on the left by the British allies, of whom 4 divisions and 3 cavalry brigades have been mobilised. Only half this force, however, has reached a sufficiently forward position to take part in the operations described.

The author assumes the neutrality of Belgium and eliminates the presence of French frontier fortification. He asks us to consider the scheme quite apart from the general strategical situation. The scheme is, à propos, simple and interesting, and will well repay the study necessary for its intelligent perusal. A sketch map is provided and the orders issued by Lord Roastem are concise and easy to follow. The scheme is intended to illustrate the following operations:—

- (i) A strategic retirement, involving a flank march, necessitated by a sudden change of plans.
- (ii) A subsequent continuation of the retirement in the presence of the enemy on the appointed place of concentration.
- (iii) The tactical offensive in conjunction with the strategical defensive, and the subsequent assumption of the strategical offensive.

The book relates exclusively the operations of the British French action being mentioned only to elucidate these.

Lord Roastem is embued with both boldness and the offensive spirit, and never errs on the side of caution. The value of co-operation is well illustrated and this phase of the campaign is brought to a completely successful conclusion.

The use of the cavalry on either side is, perhaps, the feature of the scheme most open to discussion. The principle of concentration of force does not seem to have appealed to the opposing cavalry generals.

Interesting side-lights are introduced in the shape of the dashing exploits of that enterprising squadron leader, Captain Brown, 17th Lancers, and the incident of Corporal Hutchings, a Devon Mounted Infantryman, who, with his Devon Officer, is recommended for the Victoria Cross.

The Outlines of Military Geography.—By Colonel A. C. MacDonnell. (*Hugh Rees, Ltd.*)

There must be many officers who have found themselves handicapped in studying history and strategy in the way that Colonel MacDonnell says that he was, owing to their not having recognised

that they required more than "a very perfunctory geographical knowledge of the theatres of war" about which they were reading. "Such a knowledge," says Colonel MacDonnell in the preface to the interesting and instructive work which he has just issued, "would have broadened my military horizon much earlier, and enabled me to understand many things in strategy and history which long remained in a nebulous condition."

Although the author confesses himself conscious of the difficulty of satisfying the requirements of every class of student, he seems to have succeeded in overcoming this difficulty. His book purports to be an "appreciation of the extent, and existence or non-existence, of certain geographical features connected with a possible theatre of war, and their influence on military operations generally." But the book is rather more than this. In it, we find not only the geography of various countries and areas adequately dealt with, but also, when such references are necessary, a summary of the local *status quo*, the salient points of certain important treaties, and quotations from the authorities best qualified to speak on the subject immediately under discussion. The book also contains many strategic principles, which the student will do well to take to heart. We note, too, with appreciation, that the author has confined his attention to dealing, more especially, with the countries which are likely to be of military interest to Great Britain, whereby the size of the volume is kept within reasonable limits, and its utility to British students is enhanced.

All the more important schemes, projected or in progress, are included and discussed in the book. Those of general present interest, such as the Panama Canal, the Baghdad and Trans-Persian railways, have all received adequate and well-considered attention.

The text is illustrated by a separate volume of 19 really excellent maps. These are maps either of especial interest, such as the Navy League Map, or are strategical maps of various countries and areas. The latter are mostly on the layer system. They are clear and, while not overcrowded with detail, yet show fully all that the military student wants to know, *i.e.*, the physical features of the country, natural and artificial, and the principal strategic points. The book opens with a few introductory remarks, in which the author rightly points out that, although later the study of military geography, military history and strategy, must go hand in hand, yet the latter task is simplified by first acquiring a certain amount of knowledge of military geography. He then treats of the sea, of the position of Great Britain, of the sea-boards of France, Germany and Spain, and of sea-power generally. With regard to the latter, he introduces a timely note of warning as to the limitations of sea-power, a point which is apt, too often, to be overlooked.

In a chapter on the "Selection of a theatre of war," the various kinds of physical obstacles which affect military operations, mountains, rivers, deserts, etc., are discussed. The effect of the various kinds of communications and of frontiers is also dealt with. We

welcome the inclusion in this chapter of a discussion on buffer states, protectorates, spheres of influence and leases, and an account of those now existing.

The author next takes us through the lines of invasion and defence of the principal European countries; after which, he goes to Africa and the East, finishing up with Canada. In a chapter on waterways and canals, he discusses not only those which exist, but those projected and under construction, with notes on their probable future effect.

The chief projected railways of the world are next dealt with, and then follows a chapter on naval dockyards, defended ports, and coaling stations. The book concludes with a series of articles on certain miscellaneous, but very interesting points, closely bound up with military geography. There is an article in which time and space on the routes to the British colonies is considered, and how such routes are affected by the possessions of other Powers. If we may make one criticism, we suggest that an average steaming rate of 400 miles a day is rather a high estimate in calculating the time taken in transit along the trade routes, especially if looked at from the point of view of war conditions. In another article, the question of the British food-supply is discussed, and our responsibilities in this respect are explained clearly. There is an article on cables in which the author shows how the former value of cables is becoming discounted by wireless telegraphy. In a brief article on aeronautics, the reader is asked to note the geographical effect of this science in that, what were before geographical screens to movement, cannot be relied on as such to the same extent in future. Finally, there is an article on oil fuel, which as a substitute for coal, may affect strategy. The author points out that though Great Britain is not as well situated in the matter of the supply of oil, as she is in that of coal, yet the position of the Empire, as a whole in this respect, is not without advantages.

The book is written by a soldier who knows what military requirements are, and who points the right lessons. It is thoroughly up to date, and we accord it a hearty welcome, for it fills a distinct want. We have already alluded to the strategic principles which find place in the book, and we would like to quote one illuminating passage, as an example of several which will strike the student's attention. "It must be understood," says Colonel MacDonnell, "that it is not the guns of fortresses like Gibraltar and Malta that command the adjoining waters, but the facilities they give for close naval action, based on these places."

We can honestly recommend the book, not only to military officers, but to all whose duty or pleasure takes them into the restless arena of politics, and of the international *status quo*. We only hope that the author will keep it up to date, by issuing other editions of it, when necessary.

The book is published by Messrs. Hugh Rees at the comparatively low price of 12/6, considering the excellence of the volume of maps.

(Note.—There is a misprint on page 206: For "Ibn Sands" read "Ibu Sauds.")

CORRESPONDENCE.

SIR.—In the *Journal* for April last an interesting reference is made to the great age and length of service of some of the native officers of the Indian Army in pre-Mutiny times; the instances given being those of two subadars, aged 70 and 65, respectively, who were killed at Chillianwallah. That such cases were not confined to the Infantry, the following extracts will show:—

Brigadier L. R. Stacy in his "Narrative" of the operations of Nott's Army in Afghanistan in 1842, states that at the unfortunate cavalry action at Oosman Khan-ki-Karez on the 28th August 1842, when the 3rd Bombay Cavalry lost two British officers killed and another mortally wounded, the regiment lost also its subadar-major, "who was the oldest soldier in the regiment and wore a medal for Seringapatam and had distinguished himself on several occasions." It is uncertain whether the operations of 1792-93 or of 1799 are referred to, for each of which the native army received medals, but in either case the gallant subadar-major must have been a veritable "buddha."

A still more extraordinary instance is given by Cardew in his "Services of the Bengal Native Army," where it is recorded that at that similarly unfortunate cavalry action at Ramnagar, 22nd November 1848, the 8th Bengal Light Cavalry lost the Subadar-Major, Mir Sher Ali, Sardar Bahadur, "an old man of 78 years and of nearly 60 years' service"—a brief record of the services of some of these veterans would make interesting reading.

H. B.

LONDON:
11th May 1911.

VIII. ARMY ESSAYS.

Two prizes, of Rs. 150 each, are offered for the best essays in the Northern and Southern armies respectively, during the year 1911.

The subjects chosen are :—

(a) by the G. O. C. the Northern Army (*vide* Northern Army Order No. 95 of 1910).

"Maneuvres as an imitation of war are frequently full of unrealities.

To what extent can their likeness to war be reasonably increased?"

(b) by the G. O. C. Southern Army (*vide* Southern Army Order No. of 1910).

"Co-operation in attack and defence between Infantry and the other arms. How is it best attained?"

The army orders quoted give all instructions and conditions.

IX.

The Council have selected the following as the subject for the Gold Medal Essay Competition for 1911-12.

"It appears to be generally recognized that the three principles of sea command self-defence and mutual support must be the basis of any sound system of Imperial Defence."

* (Page 33, Imperial Conference on the Naval and Military Defence of the Empire, 1909.)

"Discuss the responsibility of India in regard to the use of her existing military forces in giving effect to the above principles."

For further details see special slip.

* Correspondence and Papers on the Naval and Military Defence of the Empire, 1909. Printed by Darling & Son, 34-40, Bacon St., London E. Price, Ed.



THE JOURNAL

OF THE

United Service Institution of India.

Vol. XL.

October 1911.

No. 185.

SECRETARY'S NOTES.

I. The Members of the Council elected to serve on the Executive Committee for the year 1911-12, are:—

Lieutenant-General Sir D. Haig,
K.C.V.O., C.B.
Brigadier-General A. Hamilton-Gordon,
C.B.
Brigadier-General H. V. Cox.

Lieutenant-Colonel S. H. Powell.
Major G. F. MacMunn, D.S.O.
Major W. C. Black.
Captain J. Charteris.

II. NEW MEMBERS.

The following Members have joined the Institution during the months of June, July and August 1911:—

Major W. H. Campbell.
Mr. D. Macfarlane, C.E.
Lieut. H. M. Liepmann.
Lt.-Genl. Sir P. H. N. Lake, K.C.M.G.,
C.B. (Life Member).
Major H. Herdon.
Officers' Garrison Library, South Africa
(Subscriber).
Lieutenant A. A. Williamson.
Lieutenant R. B. Charsley.
Lieutenant A. K. Park.
Major de C. Ireland.
Major G. R. W. Churchill.
Major C. A. Roosmale-Coeft.

Chinese Military General, Impl. Genl.
Staff (Subscriber).
Lieutenant J. Isaac Nichol (Subscriber).
Lieutenant H. H. S. Vaughan.
Br.-Genl. W. P. Braith-Waite, C.B.
Lieut.-Col. P. Buckle, D.S.O.
Mess President, 88th Carnatic Infantry
(Subscriber).
Capt. A. Hove-Ruthven.
Capt. W. Forester.
Lt.-Col. C. S. B. Evans-Lombe (Life
Member).
Lieutenant P. R. Quayle.
Major H. G. Brett.
Lt.-Col. F. de S. Burney.
Major E. N. Heale.

III. TACTICAL SCHEMES.

To assist officers studying tactics, tactical schemes are issued, by the Council of the Institution, to members only, on the following terms :—

Rupees 5 per scheme, or Rs. 50 for a complete series of ten schemes, these charges including criticisms and solutions by a fully qualified officer selected by the Council.

Two sets of schemes (10 schemes in each series), revised to 1911, are now available, and a third series is in process of preparation, of which five problems are ready for issue.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India, Simla.

IV. MILITARY HISTORY PAPERS.

In order to assist candidates for the Staff Colleges, and other officers, in the study of military history, the Council of the Institution have decided, as a tentative measure, to issue, to members only, sets of questions on selected campaigns. The following papers are now available :—

- (a) Two sets of six questions each on the Indian Mutiny.
- (b) Two sets of six questions each on Callwell's Small Wars.
- (c) Two sets of six questions each on the strategy of the Russo-Japanese War.
- (d) Three sets of six questions each on the battles of the Russo-Japanese War.
- (e) Two sets of six questions on the Afghan War, 1878-80.

The charge for these papers is Rs. 5 each, including criticism by fully qualified officers selected by the Council.

A number will be allotted to each member applying for papers, and solutions must be sent under these numbers to the Secretary, United Service Institution of India.

V. CHANGES OF ADDRESS.

Besides keeping the Secretary informed of all changes of rank and title, members are particularly requested to notify any change of address.

VI. LIBRARY CATALOGUE.

The price of the new catalogue is Re. 1.

VII. ARMY ESSAYS.

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The subjects chosen are :—

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"Manœuvres as an imitation of war are frequently full of unrealities.
To what extent can their likeness to war be reasonably increased?"

NOTE.—Secretary's Notes are continued on page 457.

MILITARY EDUCATION AND THE STAFF COLLEGE.

By J. C.

There are few problems that are so hedged round with difficulties as that of military education. The ideal is clear enough. As the progress of science has gradually diminished the value of mere brute strength as the chief requirement for a successful rank and file, so in the higher ranks has the "born" soldier been supplanted by the "educated" soldier. But steady and strong will and calm judgment are as essential now as formerly, and while education may foster this "will power" it can hardly create it.

The recognition of the value of education has been slow. The vested interests were many and powerful, the opportunities of evidencing its value were necessarily few. It was difficult to produce specific examples to support the arguments in favour of scientific education, and argument, however logical, if unsupported by examples, makes slow impression on the human mind. Often also those whose nature rendered them willing to study lacked some of the other requisites that go to supplement education in the successful soldier, and instances become numerous where the educated soldier failed and his fellow without scientific training succeeded. The issue was in fact between knowledge and theory based upon the experience of others on the one hand, and intuition and personal experience on the other. It would be flogging a dead horse to adduce again the arguments advanced on either side. The "mule of many campaigns and still a mule" did yeoman's service on the one side and the "good fighting soldier" on the other. But the "mule" won. The necessity of some measure of military education for all ranks and of the highest education among the leaders and their staff is now an article of faith throughout the army.

But the acceptance of this article of faith by no means solved all the difficulties. It is one thing to recognise the ideal, another to attain it. For, after all, the final test of all training lies in its application to the definite practical issues that call for solution. It is here that an organisation suffers which exists for a contingency that occurs at ever-increasing intervals. For in a civil profession the highest test to which a man's training is subjected is in his daily work, and it is easy to reward in accordance with results. The task is indeed taken out of our hands and is done by the natural course of events. So, a successful brief brings reward to a lawyer; success in the battle against disease, to the doctor; success against difficulties of nature, to the engineer; and success against his competitors, to the merchant. But in the army such tests occur but seldom. In the brief periods of war men come to the front through success in the enterprises committed to their charge, but in the

long intervals of peace there is little facility for discrimination. The inducement to educate is not always visible, and hence voluntary effort cannot be relied on. And so recourse has of necessity been had to examinations (a poor substitute) placed like so many ditches that have to be taken in the course of service.

To say that these examinations are unpopular throughout the service is an understatement—they are loathed, and with reason. For failure brings definite drawbacks, and success no definite reward. Yet they are necessary. Their value is evident to anyone who has compared the papers sent in a few years ago with those now submitted. But the education afforded by the study necessary for the passing of these periodic examinations is meagre in regard to the requirements for an officer who may be entrusted with the lives of a considerable number of men in battle—and with—what is far more important—an issue that may affect the national interests. For instance, it has long been recognised that for a staff officer a more complete training is necessary than that which he can obtain from his own experience in a unit and by personal study. And so Staff Colleges appeared for the higher education of those whose inclinations or ambition led them to undertake the necessary hard work.

So far, what has been written applies in varying degree to the armies of all civilised powers. Each has at different intervals followed the lead set by Prussia some hundred years ago, Great Britain in conformity with her national characteristics bringing up the rear. And during the last few years India has followed the lead of Great Britain and now has its own Staff College at Quetta. But it cannot be claimed that this College has been more than moderately successful in attracting candidates. The inducement offered has not apparently been sufficient to overcome the dislike of undertaking a somewhat formidable examination. For so far, with the exception of R. E. officers, there have in no single year been more than sufficient qualified candidates for the vacancies offered. Now this can only be due to one of two causes: either the will to enter for the examination is lacking, in other words, the inducements offered are too small, or the difficulties of the examination frighten away those who would otherwise enter. We incline to the latter solution, but it is well to endeavour to analyse both the inducements and the difficulties. The inducements seem to fall under two main heads:—

First there is the appeal to duty. The officer, who desires to be worthy of the trust that may in time of war be imposed on him, desires to fit himself to the greatest measure in his power for the task. Whatever that task may be, whether leading a company or a battalion or a brigade or an army or serving on the staff or in a department, the experience gained at an institution designed and conducted for the sole purpose of training for war must necessarily be of the greatest value. In an army whose watchword for many years past has been duty there must be many to whom this view appeals, and it is they who are the most valuable and, we believe,

the most valued, at the Staff Colleges either at Quetta or Camberley. This inducement is not one that the authorities can directly foster. But it is one that should be the constant care of every officer commanding a unit in dealing with his juniors.

The *second* inducement offered by the College is that of ambition, and human nature being what it is this inducement probably appeals most strongly. It is well then to investigate it a little more closely. At the present moment the passing of the Staff College, while not an essential qualification for staff employ is the direct avenue to it. Now it is an obvious fact that this staff employ should not be—and is not—the only road to success in a military career. Nor is the staff officer one whit more valuable than the regimental officer. But just as regimental experience is essential to success in a staff officer so is staff experience, implying as it does a knowledge of and sympathy with other units and departments, a most valuable asset to a regimental officer. The influence of environment upon character is nowhere more evident than in the army. It is only the very exceptional officer who can serve his whole time in one unit without his mental horizon becoming contracted and his sense of proportion unjust. And this restricted horizon and lack of due proportion must inevitably affect the efficiency of the regimental officer. The deduction is obvious. The most valuable regimental officer will be he who, after a thorough regimental training, has done a period of staff duty and then returns to his unit. And it is because this class of regimental officer is the most efficient as a unit commander that when his period of command is finished he will stand the best chance of further preferment. Further it is to be remembered that this inducement will become stronger as time goes on. Probably long before those who may now go to the Staff College have completed their period of command of a unit it will be a recognised fact that the Staff College trained officer is not only the best for the staff but also the best regimental officer and hence the officer most suitable for the command of a higher unit. Staff experience will, it is hoped, never be a necessary qualification for such higher command, in the sense that without it all officers are definitely debarred, but it should be, and will be, the natural avenue to such preferment.

These are the two main inducements that bring to the Staff College the most suitable raw material and they should be strong enough to attract all the best of the young officers. Against these inducements there are certain stout arguments advanced. First, there is the question of expense. The late commandant of the Quetta Staff College, in a speech reported in all the daily papers of India, pointed out and supported by figures that the expenses of a bachelor at Quetta are in fact less than with a regiment. For a married officer there may be some slight increase in expense, but the difference is surely not a sufficient deterrent. Then there is the old argument that an officer who does not do well at the College may do himself harm. He may have had a long series of good reports from his unit—few

officers have not—and a single bad report from the College may damn him for ever. The argument hardly deserves serious mention, for an officer so lacking in self-confidence or so conscious of his own inferiority to his fellows is unlikely to derive much benefit from the course. The confidential report at the conclusion of the Staff College course may be more searching than the regimental report, but it is also more just. And officers who may have deficiencies exposed in this report may rest assured that the authorities quite realise that it by no means follows that these deficiencies do not exist undetected in many of their regimental brethren. There is one last argument that is sometimes advanced, to the effect that the work at the college is more than an ordinary mortal can bear. The answer is that very ordinary mortals have borne it and thriven in the process.

Before we leave this question of the inducement offered to attract officers to the college, it is interesting to note that the alternative inducement offered for other military examinations such as language examinations in the form of a paltry monetary reward has never failed to secure large numbers of candidates. Had some of the officers who have eked out their income by passing numerous languages spent the time in working for and passing the entrance examination for the Staff College, they would probably find in the end that they had made a better investment.

It has been shown above that the inducements offered should be sufficient to attract the best of the young officers of the army, yet the hard fact remains that candidates in large numbers are not forthcoming. There can be only one reason for this: the difficulties to entrance are too great, or are at all events so great that they frighten away many candidates. Now these difficulties are all comprised in the somewhat formidable syllabus of the entrance examination and in the absence of crammers in India. Here all our sympathies are with the officer. After several years spent in regimental work it is discouraging to find that one has to renew a nodding acquaintance with mathematics and two languages, and this with no army tutor to effect the introduction. Add to this a syllabus of military history which few officers or even tutors could pretend to know well, one or two entirely new military subjects thrown in, and it is perhaps small wonder that the would-be candidate gives up in despair. Were he in England he would go to an army tutor whose first task would be to show him that the syllabus is far more formidable than the examination. In a few weeks the tutor would take him over the whole subject-matter. He would find that the knowledge of a campaign required to face the examination is not very large; that the military geography of the world with special reference to half the continents is (for examination purposes) not really a very difficult undertaking. Lastly, he would find working with the tutor many of his competitors in the examination. He would recognise they were no greater intellectual giants than he himself. He would acquire confidence, and in spite of the far keener competition he

would face the examination with few qualms. It is not within the scope of this article to suggest alterations in the syllabus to reduce this feeling of despair. Possibly such alterations are desirable, but it would be idle to hope that an article such as this would bring them to pass. But to all young officers to whom the inducements we have referred to above appeal, we would preach courage as regards the examination. Any one of ordinary intelligence who is prepared to work steadily for three hours a day for six months may rest fairly assured that he will at all events qualify in the examination. Whether he is successful in the competition must depend on who are competing against him.

Of all the subjects with which the candidate for the Staff College has to deal, that of military history is probably the most important, both as regards success in the examination and from the point of view of education as a soldier. "If men fail to do what they ought to do," says Colonel Henderson, "it is more often than not because on their horizon the true principles of conduct do not stand out above the mists of passion and minor issues as beacon lights, for the one reason that their mind's eye has not been trained to see them." And the readiest means of acquiring this training of the mind's eye is by directing it to the record of the campaigns that have made history, by tracing the mistakes and their consequences, and by learning the great principles of warfare, not as so many dogmas that can be recalled at will but in such a way that they become lessons of one's own experience.

It is because the importance of military history is so clearly recognised that it occupies so large a space in the syllabus of our military examinations. But it is open to doubt whether these examinations have fully impressed on the candidates either the method of approaching the subject or the full advantages to be gained from the study. The very term history brings back to many of us the days when under threats—and possibly very real threats—of punishment, we learnt the names and the dates of the various monarchs who at one time or another ruled England. With this and similar knowledge we could face the examinations of our school days with the two comforting reflections, first, that we should by no means disgrace ourselves in the examinations, and secondly, that our minds would disgorge the useless information at least as quickly as it had absorbed it.

And so perhaps it was natural enough that when military history was first included in promotion examinations, the candidates should laboriously pick out the dull record of names, numbers, dates and places, and face the paper with the same discontented weariness as in childhood's days. Nor can the examiners be held quite guiltless; for the examinations, at first at all events, offered little inducement for any further study. Yet all these dates, numbers and places are in themselves quite unimportant, except in so far as they are necessary to understand the military situation at the moment. And in the papers set now for even the promotion examinations, and

certainly in those for the entrance to the Staff College, a higher standard is required. Each question assumes the form of a problem and the aim is not to test the memory of the candidate but his judgment. Now this change, good though it is, has one evil result: the candidate when he had only long lists of dates and names and numbers to learn by heart knew at least what was demanded of him and knew how to acquire the knowledge. But, under the altered conditions, it is often the case that the candidate has no idea of how or where to begin.

It is true that in many stations there are officers who have passed the Staff College course and who are able and willing to assist him. But such officers are generally holding staff billets and their time is fully occupied. It is to show intending candidates for the entrance examination of the Staff College how they can best undertake the work, unaided, that this article is written.

In the preparation for any examination the first thing to do is to get clearly into the mind the object and the particular knowledge that the examiner is endeavouring to test. So at the risk of reiteration it must be emphasised that in all military history examinations, what is required is a knowledge of the great principles of war and of their application as illustrated in *wars of the past*. That is to say, what is required is an intelligent criticism of the various incidents of the campaigns. How then is this knowledge to be attained? The military history papers are divided into two sets of papers. The one deals with a particular campaign, the other with all campaigns extending over a considerable period of time. In the first of these sets of papers a knowledge in considerable detail is required; the main features of each battlefield and of the movements of the main forces must be known. In the second set of papers, it is clearly recognised that the very extent of the period precludes all except a knowledge of the main incidents of the campaign. In other words the questions on the special period are set to cover strategy, grand tactics and to a certain extent minor tactics, while those in the general paper only embrace strategy.

Now let us take the special paper first and consider how to attack the problem. The campaigns set are generally of such historical interest that many books have been written about them. The General Staff issues a list of books suggested for the study of these campaigns. The list is available in all divisional libraries. The first thing then for the candidate to do is to select some one book from this list for his preliminary studies. Which book is selected is of little importance provided it is a history and not a cram book, for the features of the campaign are in the main correctly recorded in all. The book selected should be read through, with care but without any definite attempt to commit to memory the main incidents, and without making any notes. This preliminary reading will give the reader a general idea of the campaign on which to base the real study of the campaign. This real study is as much if not more a matter of writing as of reading. The first thing to

do is to make a series of tracings of the theatre of the operations, all to the same scale, showing the main topographical features, military obstacles, communications, chief towns, etc. On the first of these maps, there should be placed the troops of both sides at the moment when the campaign commenced. From this map and with this information only, an appreciation should be worked out and written for either side. These appreciations should then be compared with the plans actually adopted by the leaders and if they differ, as they generally will, if done without reference to the *res acta*, an endeavour should be made to trace the reasons that actuated the leaders and these reasons should be carefully criticised.

This first problem is perhaps the most important in the study of the campaign. For it is a truism that the fate of a war is often decided in the first few decisions. Mistakes once made cannot readily be corrected in one campaign. From this initial decision there follows in every campaign a period of varying duration according to the distance and obstacles separating the forces in which the armies approach one another.

Then there arrives another period of first importance in which one or other leader has to make a decision that affects his future actions; in other words a crisis in the campaign arrives.

Again the student should have recourse to his maps. He should mark carefully the position of the opposing forces and again, without reference to the *res acta*, make for himself an appreciation and decide how he would have acted had he been in command.

This decision should again be compared with that actually arrived at by the commander concerned and the reason for any difference analysed and written down. Carrying this process on through the campaign the student will find that at its conclusion he has certain very strong opinions regarding the actions and the abilities of the opposing leaders. He will be able to trace to what causes failure and success were due. He will find that this systematic study will have impressed on his memory the leading features of the campaign far better than any amount of mere reading could have done. But most valuable of all for his own education and from the point of view of making good marks in his examination he will find that he has formed his own opinions and has not abstracted the opinions of others. For he may accept it as a fact that the examining officer, whoever he be, will be well able to separate original work from mere gramophoning of the opinions contained in the standard literature on the campaign and he will give greater credit for original ideas, however crude, than for quotations however accurate. Finally the student will find that when he has finished the study of the campaign he has a series of maps showing all the main phases in the campaign from which he can readily refresh his knowledge at any time. A precisely similar process should be followed in the study of the actual battles.

Now as regards the general or strategy paper, the system must again be on much the same lines as for the special period, but

detailed knowledge of all the incidents of all the campaigns is not dreamt of by the examiners. In one respect the student is fortunate, for there are few cram books written on this subject and these are difficult to obtain. But there is another difficulty almost as great, the reference books are numerous, generally however they are translations from foreign languages, and like all translations they suffer in the process. But there is one sheet anchor, written in English and for English students—Hamley's Operations of War. The study of this work should be the first step for this subject. The student should read the body of each chapter omitting in the first instance the numerous and excellent examples. When he has finished he will find that he has a good idea of the main principles of war. Then let him read the history of any one campaign in the syllabus, not with any attempt to remember the details but endeavouring to note the various incidents where he can trace the application of the principles he has learnt from Hamley. Let him make a note in the form of a sketch plan of each. Then let him check what he has written by a reference to Hamley's examples, and see whether his examples agree or differ from those of Hamley. He may or may not find that Hamley has chosen the same incidents as he has. Clearly all incidents cannot be included in one volume; but in the examination, if his instances are well chosen and well expressed, the candidate will get more credit for original work than for correct quotation. If this is repeated for all the campaigns then the student may have hopes, not likely to be fulfilled, of obtaining full marks. But this is a counsel of perfection. It is unlikely that the student will have time among his other labours to cover every campaign in so careful a manner; nor is it necessary, for the examiners realise the wide scope of the paper and set their questions accordingly. But at least half of the syllabus should be studied in the manner outlined above. For the others a less thorough study must often suffice. When his studies are nearing completion, the student might well take advantage of the opportunities offered by the U. S. I. for having his knowledge tested and perhaps corrected. The papers are set and examined by officers who have themselves been through the Staff College. Their express purpose is to direct the studies of officers to the right lines.

One final note of warning, the writer has seen many men commence study for the Staff College and give up disheartened. It is true that those who thus turn back are probably those who would not do justice to the college. But there are exceptions. To these it cannot be too strongly urged that the study of military history like all other tasks becomes easier as the effort is continued.

INFANTRY IN GRAND TACTICS.

From a lecture given to the Bangalore Garrison.

BY CAPTAIN A. F. HENDERSON, 27TH LIGHT CAVALRY, BRIGADE
MAJOR, BANGALORE CAVALRY BRIGADE.

The German military authorities have pinned their faith to envelopment of an enemy's flank as essential to success in battle. The French believe with equal conviction that a blow driven home by a large General Reserve is the one method of obtaining a victory. Our own F. S. Regulations (para. 102) state that either method of deployment may be adopted, with the reservation that the German method is better suited to large armies, and that it does not admit of keeping a large General Reserve. Read in conjunction with the remainder of the chapter this would appear to indicate that we consider that success is due to firmness of purpose in the leader and his subordinates, rather than to the excellence of a particular plan.

It is proposed to examine the lessons of two battles, in order to learn from them something of what each form of grand tactics demands from leaders and subordinates, and, as General Langlois does in his valuable book "Lessons from Two Recent Wars," to see whether the lessons deduced agree with our own F. S. Regulations.

It may make the meaning clearer if we compare the two methods to two games of cards. In the German method the adversaries arrange their cards, and lay them on the table face downwards. They then proceed to turn up the cards. The king may fall to the ace, but the three and four, of which little was expected, make the odd trick, and the game is won. In the French method the cards are played from the hand, and the last trick decides the game. In both these games we shall see that there is one fatal fault, and that is to hold up the big cards till too late, and thus to lose the game with a winning hand.

ACTION ON THE TANG HO PRIOR TO THE BATTLE OF LIAOYANG.

(Account taken from Part IV, Official History of the Russo-Japanese War.)

On the 22nd August Marshal Oyama ordered General Kuroki with the 1st Army to gain possession of the heights west of the Tang Ho, and to extend his left towards the 4th Army which would then be about 10 to 12 miles west of him. On the same evening Kuroki issued his orders, and here we see the process of arranging the cards before laying them down. The order of the divisions from north to south was to be the 12th, the 2nd, and the Guards. He took the greater part of the cavalry of the 2nd Division from the centre and gave it to the Guards, who were to be on the left flank, and would have to gain touch with the 4th Army. He took some

of the field artillery from his centre division, and gave it to the Guards, because the country in the centre was unsuited to wheeled artillery. He gave some extra mountain artillery to the centre division to replace the field artillery. He gave to each division a definite objective: to the 12th Chi Pan Ling and the country to the north of it with orders to watch their right flank, to the 2nd Kung Chang Ling and Hill 2100 south-west of it, to the Guards the main road and Ta Tien Tzu. Each division was simply ordered to attack on the 26th, and there was no mention of feinting, demonstrating, holding attacks, main and secondary attacks, or key of the position. In fact there was "nothing of an indefinite or conditional nature"—(F. S. Regs., para. 19). For his General Reserve he hoped to be able to get a Kobi Regiment from his line of communication troops.

He himself was to be at San Tao Ling some 7 miles from the battlefield. The only alteration made in these dispositions was that a brigade from the 12th Division was ordered to help in the attack on the centre.

Although his army consisted of only three divisions, it was thus opened out on a front of nearly twenty miles against the four divisions of the Russians.

Kuropatkin appears now to have felt that he ought to take the offensive, but he was not sufficiently decided to issue orders to his subordinates to this effect. In criticising General Bilderling, who was in command in this portion of the battlefield, it is only fair to remember that he was never told that with four divisions he should act with boldness against Kuroki's three divisions.

The Guards Division had rather further to go than the other divisions, and had also to make the main road fit for the passage of wheeled artillery. This division accordingly started earlier than the others, and was engaged with the advanced posts of the Russians on the 23rd, 24th and 25th, on which latter date they seized the line Lang Tzu Shan—Tun Shin Pu. We may take it for granted that, in accordance with Marshal Oyama's fighting instructions, this line was immediately fortified. This move of the Guards' Division was in reality merely made in order to bring them into line with the other divisions for the general attack, but it focussed the eyes of the Russian Commander on his right, and he began to order reinforcements to what he considered the threatened point.

The Guards Divisional Commander Hasegawa launched his attack at dawn on the 26th. He doubtless expected with his field artillery to be able to cope with the Russian artillery. The latter however, by a fortunate selection of positions and an enormous expenditure of ammunition, succeeded in dominating the battle in this portion of the field. By 2-30 P.M., the left of the Guards' Division, consisting of the 1st Brigade, was in danger of being driven in. The Brigade Commander applied for reinforcements and the Divisional Commander ordered up the whole of the divisional reserve, one battalion infantry and one battalion of engineers, and pushed forward his right to relieve the pressure on his left.

Earlier in the day Hasegawa, foreseeing the difficulty of his task, had applied to Kuroki for reinforcements, and Kuroki had promised to send up the whole of his reserve, the 29th Kobi Regiment, although this regiment could not be expected to arrive at the scene of action before 6 P.M. In neither of these cases could the superior commander have dared to part with the whole of his reserve, unless he could absolutely trust his subordinate not to squeal for reinforcements, before he was really hurt.

Their task finally proved quite beyond the powers of the Guards' Division, and at first sight it might appear that 1,000 casualties in their ranks (800 were in the 1st Brigade on their left) had been the fruitless result of an impossible frontal attack. Actually, the Russians were so impressed by the vigour of the Japanese attack, that their strength was reported as two divisions instead of one. As a consequence of this General Bilderling, disbelieving the statements of his subordinates as to the strength of the Japanese attacks in the other portion of the battlefield, refused to send reinforcements to his centre or left.

In the centre the Japanese Commander, realising that his mountain artillery must be outranged in daylight by the Russian artillery, fought his way forward during the night, and made good his footing on the hills one mile east of Hill 2100. The Japanese Mountain Artillery came up in the line with their infantry and opened fire at 7 A.M., but Russian reinforcements were brought up to Hill 2100 and the Japanese centre by 8 A.M. was at a deadlock. Finally two mountain guns were brought forward by the Japanese under cover of the Kao-Liang, and their fire, coupled with the advance of the 12th Brigade 12th Division, induced General Gershelmann, the local Russian Commander, to withdraw the 9th Division from the front to the reserve. Thus the Japanese centre, as well as their left, was in a dangerous situation early in the day. A determined attack against either of these by the Russians might have resulted in a success, which would have isolated the Japanese 1st Army from the 4th Army.

On the Japanese right the Russian position must have appeared to the Japanese to be resting on a natural redoubt. It was here that Kuroki least looked for a success, and neither he nor any one else could have foreseen that this would prove to be the decisive point. The Hung Sha Ling however was held by only one regiment and in the trial of battle it proved to have a defective field of fire; further the platform on the top of the ridge was so narrow that the gunners had to be exposed on the skyline while serving the guns. After the most desperate fighting the Tambov Regiment was driven off the hill at 6 P.M. by the 23rd Brigade, 12th Division. Bilderling refused to reinforce them, owing to his own over-estimate of the strength of the Japanese left.

The day closed in a violent storm, but it left the Japanese 23rd Brigade in possession of Peikou, which dominated the Russian line of retreat to the main Liaoyang position. On the Russian side 11

battalions of the 3rd Division were within reach of the battlefield, but no use whatever was made of them. It was not until 8 P.M. that two regiments were ordered to the help of the Tambov Regiment on Hung Sha Ling, but as the hill had been lost at 6 P.M. they arrived too late to be of any use.

It seems reasonable to suppose that in these 11 battalions Bilderling held a winning card, which played in time would have won the game for him. Had he used them in a decisive attack to confirm his success on his right or in the centre, the Japanese 1st Army would have been in a very serious situation, and it is almost certain that the advance of their right would have been brought to a standstill. Even if he was unwilling to assume the responsibility of committing his Commander-in-Chief to the offensive, it would surely have been better to obtain a local victory, so as to clear his way for a retirement.

There is a minor point in this battle, which is worthy of notice. In the attack on the centre, to quote from the Official Account, "almost an hour earlier than had been intended, fire was opened by the Japanese 15th Brigade. The Commander of the 3rd Brigade therefore gave orders for an immediate advance." With this we may contrast an extract from the Official Account of one of our own wars:—"The battalions under ——expected to be called upon to attack the works in their immediate front, and —— sent an order to advance the moment the attack (by another brigade) was successful, but by some mischance the message was not received. Therefore ——'s part in the battle was necessarily limited."

PLEVNA.

(From "Lessons of Two Recent Wars"—General Langlois.)

The Turks at Plevna had taken up a position on the western flank of the line of advance of the Russians, who could not move further south into Turkey, until Plevna had been taken. After two unsuccessful attempts on the 10th and 20th July the task was given to Prince Charles of Roumania with 107 battalions, 95 squadrons, and 444 guns. To oppose him Osman Pasha had only 45 battalions, 12 to 14 squadrons and 70 guns. We may fairly say that Prince Charles was dealt a winning hand; it remains to see how he played it. He arranged his hand as follows. The troops were divided into three sections. To the eastern section were assigned 48 battalions under two independent commanders. In the southern section there were 12 battalions followed by the General Reserve of 9 battalions. In the south-western section there were 10 battalions under Skobeleff, and 21 battalions to support him under Imeretinsky, total 31 battalions. In only one instance was an objective given to any section; two battalions of the eastern section were ordered to attack the Grivitsa Redoubt No. 14.

The attack was originally ordered for the 9th September, but as no results were obtained from a four days' bombardment, it was deferred and finally ordered for 3 P.M. on the 11th. An attack at so

late an hour prevented any attempt at surprise, and made it almost impossible to complete a victory.

The whole attack of the eastern section (48 battalions) concentrated itself on the Grivitsa Redoubt, which was carried at 6 P.M. This redoubt was the official "key to the position;" as usual it opened no door to victory.

In the southern section the first body of troops was launched prematurely at 1-30 P.M. This was soon brought to a standstill, and received no impulse from the rear till $1\frac{1}{2}$ hours later. A third body of troops was also sent forward an hour later, followed by a fourth still later. In each case, owing to the delay in following up the attack, the fire of the leading body had been already dominated by the fire of the defenders, so that they were unable to cover the advance of the supporting troops, who were similarly brought to a standstill without being able to carry forward the body of troops they were sent to support.

It would appear better to accept the minor evil of casualties in the second body of troops, from bullets intended for the first line, than to risk the attack being indecisive. Even arguing from a lower basis, the casualties in this section were far heavier than in the other sections, where the attacks were attended with a measure of success.

The attack by Skobelev in the south-western section may well serve as a model of the way, in which such an attack should be conducted, and as such it is proposed to describe it in greater detail.

As no objective had been assigned to him, Skobelev chose one for himself. He selected Redoubts Nos. 7 and 8. He accepted the risks of enfilade fire from Redoubts Nos. 9, 10, 11, and 12, in view of the probability that the attack on Redoubts Nos. 7 and 8 could assist and be assisted by the attack of the southern section on his right, and that consequently it promised to be more decisive than an attack on the other redoubts. It does not appear to have occurred to General Imeretinsky on the battlefield, or to General Langlois in his criticism, that even a weak attack launched against Redoubts Nos. 9, 10, 11 and 12 would have considerably simplified Skobelev's task.

During the ineffectual four days' bombardment Skobelev continually engaged the Turks in his front, and fought his way forward successively from spur to spur north of the village of Bretstovitse. He fortified the village and the 1st and 2nd spurs, thereby carrying out the principle that in the last three wars has always formed part of the fighting instructions of the Commanders issued in the field, as the result of actual war experience, namely, that "all important tactical points should when gained, at once, be put in a state of defence"—(F. S. Regs., para. 105 (5)).

Finally on the morning of the 11th, the day of the general attack, he took the third spur and entrenched it.

At 3 P.M. his own troops and the reinforcements, received from General Imeretinsky, were arranged for the final attack as under:—8 battalions on the 3rd spur, and 3 battalions behind it; 5 battalions

behind the 2nd spur, and a garrison of 4 battalions on it; 1 battalion in Bretstovitse, and 1 battalion to guard his exposed left flank.

The attack was launched at the hour ordered, 3 P.M. As soon as the first body showed signs of wavering, the second body was sent forward, and carried the first body with it some 200 to 300 yards. The advance was again checked, and the third and last body was promptly launched, and carried the attack up to the foot of the ditch. Here they were brought to a standstill, and Skobelev played his last card. He placed himself at the head of his troops, and led them in person into Redoubt No. 8 at 4-30 P.M., $1\frac{1}{2}$ hours after the attack had begun. Redoubt No. 7 fell shortly afterwards, and Skobelev brought up some of his artillery, and once more fortified the position he had won. In this position he held his own for 24 hours, but as no effort was made to relieve the pressure on him by the other sections, he was eventually forced to retire.

Prince Charles with 107 battalions had been repulsed by the 45 battalions of Osman Pasha. Out of the 107 battalions, 34 never fired a shot, and 7 others were practically not engaged. We must admit that Prince Charles had held up his winning cards, and thereby lost the game.

The frontage, on which this battle was fought, was little more than 10 miles, and if the attack had been begun at dawn, a large General Reserve, such as General Langlois advocates, might have arrived in time to follow up a success before nightfall wherever it occurred. It is however a matter for speculation as to whether Prince Charles might not equally have achieved a success without a large reserve, if he had assigned definite objectives to the various commanders, and arranged for a simultaneous attack. He actually engaged only 4 out of the 22 works constructed by the Turks.

The essential cause of the failure of the Russian leaders in both these battles appears to lie in the fact that they failed to utilise the whole of the force available rather than that they adopted any particular form of grand tactics. If the first principle of strategy is the concentration of superior force at the decisive point, then the first principle of grand tactics must be the full employment of the entire force, horse, foot, and guns to the best advantage, and the only method of insuring this full employment is to assign definite objectives to everybody--(F. S. Regs., para. 104, 2, i). One advantage of the German method is that this problem presents no great difficulty, but in the French method the objective of the General Reserve has to be decided during the battle, as the results of the attempts to wear down the resistance of the enemy become known. The general principle is that its part will be to follow up a success, and not to reinforce threatened points. It is to be used to complete a success, not to avert a defeat.

The next step is to ensure that all subordinates attack their objectives at the same time, and that they all attack with a firm

"determination to press forward at all costs—" (F. S. Regs., para. 105 (4)), as Skobelev did at Plevna, and realising, as Hasegawa did at Liaoyang, that "as much self-sacrifice will be required from troops, to whom the task of wearing down the enemy's resistance is allotted, as from those taking part in the decisive attack"—(F. S. Regs., para. 105 (4)).

As we are already agreed that everything of a conditional nature is to be avoided in operation orders—(F. S. Regs., para. 9, 1, i), it would seem that we should abolish all such terms as "feint," "demonstrate," "holding, main, and secondary attacks." Our F. S. Regs., para. 112, more or less apologises for using even the unavoidable term "decisive attack."

What we clearly want is that every attack should be delivered in the spirit in which the last chukker of the final at polo is played. No man hesitates about getting up on his best pony for the third time even if it has a doubtful off fore. He may be himself feeling the toss he took in the second chukker, but this is the last chukker of the final game. The pony can be laid up after to-morrow, and the man can go on the sick list, but nothing matters now except to go on playing the game, and to pull it off somehow.

As Colonel Haking suggests, there should only be two forms of orders to troops for a fight—(a) to attack a certain portion of the enemy's position at a certain time (b) if it is desired to limit their action, to seize and hold a certain line. Having received such orders, a subordinate must throw himself into the action as a last resource, rather than fail to attain his object.

A natural product of wars against savages is a want of sense of proportion with regard to casualties. On the frontier each casualty means at least four men lost to the firing line, and an easy target, in the shape of a stretcher party, for the enemy. With 25 per cent of casualties a company is immobilised, and a regrettable incident, rapidly rising by means of the newspapers to a national disaster, ensues. In civilised warfare however, judging by recent results, even 50 per cent of casualties cannot be regarded as too high a price to pay for a successful attack. Unnecessary casualties, such as those caused by failing to guard the flanks of an attack, or omitting to entrench positions won, are the price paid for bungling ignorance, but it is equally disastrous to allow an attack to fail, because a leader is deterred from giving close enough support to his leading body of troops by a fear of casualties from misdirected bullets, which may hit his second body of troops.

Another natural product, caused by the constant changes of station, under which our Army suffers, is a serious want of "*esprit de l' armée*." Our regiments are full of *esprit de corps*, but it is only those regiments, who have seen service on a large scale, who realise what *esprit de l' armée* means.

With a proper army spirit, no brigade would stand idle waiting for an order, which had been miscarried, as in the instance quoted earlier, while heavy fighting was going on within a few miles of them.

Both these faults in reality can only be remedied by a careful study of Grand Tactics, and it is surely better to endeavour in peace to eradicate our natural faults than to wait for them to be brought home to us in war. Colonel Henderson * complained of the lack of a convenient summary for the study of Grand Tactics. This lack has now been fully supplied by Chapter VII of our F. S. Regulations and the complaint no longer exists, although, as it unfortunately does not lend itself to examinations, this Chapter is more often than not neglected. There are two methods of studying the lessons of this Chapter, one is to accept the statements in this condensed form, the other is to examine them by the light of recent battles. There can be no question as to which will produce the greater impression, and it is only by a firm conviction based on the results of actual wars that a leader can hope to steel his mind sufficiently to accept the responsibility of a large casualty roll on the field of battle.

The lessons are not easily learnt. The same man, who was General Kuropatkin at Liaoyang, was Captain Kuropatkin at Plevna, the brilliant Staff Officer of Skobeleff.

* Lessons from the Past for the Present.—Science of War.

SUGGESTIONS FOR INCREASING THE STRENGTH OF THE VOLUNTEER FORCE IN INDIA.

By COLONEL H. R. GOULDING, V.D., LATELY COMMANDING
1ST PUNJAB VOLUNTEER RIFLES.

In his prize essay on "The Volunteer Force in India," which appeared in the *United Service Journal of India* in 1883, General Sir E. H. H. Collen remarked that "The value of the volunteer movement in India has at last come to be fully acknowledged. It is acknowledged that we, as Englishmen, living in a land surrounded by those who can never be trusted as our fellow-countrymen, must be prepared to take every means in our power to ensure the maintenance of order and the safety and security of those who must be protected in time of need.....It behoves us so to organise our strength that no element of security which we possess shall be left out of the calculation.....In India, more than in any other country, time is everything in military operations. A few hours' delay in quelling a mutiny or insurrection may be perilous to the cause of order.....Hence we should be able to secure the safety of all important points *by means of the European inhabitants organised as military bodies.....*The Mutiny of 1857 burst upon the Government and the community, and found them absolutely unprepared."

There is reason to believe that recent events have made the European and Eurasian population in certain parts of India realise the danger pointed out by Sir Edwin Collen twenty-eight years ago, and the necessity of being prepared to meet it. It is possible that the Government of India too may think that the time has come to reconsider proposals which have been made on previous occasions to increase the strength of the Volunteer Force in India.

These proposals may be summarised as—(1) "Compulsory Volunteering," (2) Concessions.

When opinions on the subject were asked for by the Government of India in 1891, the Lieutenant-Governor of Bengal (Sir Charles Elliott) said:—"Apart from the proposals set out above, which apply to all members of Volunteer Corps, whether official or non-official, His Honour is of opinion that in future no European or Eurasian should be allowed to join the provincial service of Government unless he accepts the condition of becoming a volunteer. The employés of the State Railways who are recruited in India are, he believes, obliged by the terms of their engagement to join the Railway Volunteer Corps; and, if such a condition can be insisted on in their case, there does not appear to be any objection to Government treating its civil employés in the same manner. There would be details to be settled with regard to the length of service to be required, the division of the time between the active and the reserve forces, the grounds of exemption, and

so on. It is believed that it is within His Honour's competence to prescribe the condition indicated for all appointments to the Government service which he is now authorised to make. But as the principle is one of general application and might be adopted, if approved, by all Local Governments, Sir Charles Elliott would be glad, before initiating any such procedure, to know that it is not objected to by the Government of India." The Chief Commissioner of Burma also was of opinion that "all Government servants should be required to serve for a period of five years in the Volunteer Forces." On the other hand, the Punjab Government was not in favour of introducing a compulsory system for the following reasons:—"Perhaps the most important question raised in the papers forwarded with your letter under acknowledgement is the recommendation made by the Lieutenant-Governor of Bengal, that in future no European or Eurasian should be allowed to join the provincial service of Government unless he accepts the condition of becoming a volunteer. So far as Sir James Lyall is in a position to appreciate the necessities of the case, he is not in favour of introducing a compulsory system. It could only apply to the employés of Government entering the service of Government after a certain date, and there appear to be objections to thus creating a difference between the duties required from men already employed and those hereafter entering the service. The Government of India, however, is in the best position to judge whether a compulsory system is really required for the defence of the country, and if it is, the system can no doubt be introduced." Sir Edwin Collen, too, was strongly opposed to compulsory service. Writing on this point in the essay from which a quotation has already been made he said:—"The great point is to maintain the volunteer movement on its present basis, not to upset the principles on which it is founded, not to interfere with the interior economy and working of Volunteer Corps. The adoption of any half-and-half proposals would turn volunteering into a sham. Reference is especially made to the proposal, that it should be a rule of Government service, that all its servants should be volunteers as a condition of their appointment. Such a measure would strike at the root of volunteering. Government does not pay for the services of its employés as soldiers, and there is no reason why one particular portion of the community should be taxed in service for the benefit of the remainder. It is quite another thing to apply a general principle to the whole community without exception. Much can be done by the heads of departments encouraging those under them to join the volunteers, and by the officers of every department of the State, whether civil or military, taking an active and intelligent interest in the movement. But this is a very different thing from compulsory service as applied to a particular class of men."

It is significant, however, that after eight years' further experience of volunteering in India, Sir Edwin Collen changed his opinion.

Writing in September 1901, he said : " Since 1883, my opinion on this subject has undergone some change, and so long as no extra expense is entailed on them, all Government servants (*i.e.*, new entrants) in this country should, I think, be members of the volunteers or volunteer reserve." Early in 1892, this question was one of the many considered by the Volunteer Committee at Calcutta, and the following Resolution was passed :— "The Committee consider that it is at present undesirable that the bearing of arms should be made a condition of Government service." The details of the discussion which resulted in this Resolution cannot now be remembered, but it is thought that the general feeling was that so long as the Government of India were unwilling to entertain proposals for *personal* concessions to volunteers, it would not be fair to introduce compulsory service.

In the light of recent events, it may, however, be as well to reopen the question. It bristles with difficulties, but it may be possible to overcome them. The first difficulty is noticeable in the opinion of Sir Charles Elliott quoted above. He said that "in future no European or Eurasian should be allowed to join the *Provincial Service* of Government unless he accepts the condition of becoming a volunteer." Government servants in India are of two classes :—(1) those recruited in England for the Indian Civil, Public Works Department, Forests, Educational and other Imperial Departments; and (2) those recruited in India for Provincial Services, clerical appointments, etc. Now, it is a well established fact that the Volunteer Force in India is composed chiefly of men of the latter class; in their case no compulsion is really necessary. With a little tact and encouragement even those of them who have no taste for volunteering can always be induced to join a corps. The majority of them are keen and excellent volunteers. This, at all events, has been my experience in the Punjab. It is the official recruited in England who sets a bad example to the Europeans and Eurasians in India. Until some steps can be taken to insist on this class joining the force, compulsion or employment conditional on service would be not only useless but unfair. Officials of this class are well paid, and should be the first to respond to the claim the country has on them in the matter of volunteering. To leave them out of the net while reducing the size of the mesh to secure the smallest of the Provincial and clerical fish, would be, as already remarked, extremely unfair and would certainly create discontent.

If this view is accepted, the next point for consideration is, can the condition of service be imposed on officials recruited in England? Presumably, this could not be done by any authority other than the Secretary of State. This, however, is a point on which the writer is not in a position to offer an opinion, beyond remarking that it seems doubtful whether the present Government would be likely to countenance any measure involving compulsory military service in India. But is it really worth while to adopt extreme measures with a view to the enrolment of the officials recruited in England? In the aggre-

gate, they no doubt make up a fairly large proportion of the European population of India, but, except in large stations, these officials are scattered over the country in small groups, consisting generally of the Collector or Deputy Commissioner, an Assistant Commissioner, one or two Police Officers (whom it is not necessary to enrol), an Engineer and perhaps a Forest Officer. In the smaller stations, there is at the most one European or Eurasian clerk. The total European population of all classes is not sufficient to form a section of volunteers. It would not, therefore, be possible to train these men locally; nor would it be possible to bring them into a camp of exercise at head-quarters, because this would mean the withdrawal simultaneously from all stations of the officers responsible for the civil administration of the district. It might be said that Railway Corps find no difficulty in training men even when there are only three or four at a station, but it is obvious that the circumstances are quite different from those prevailing in non-railway corps. The railway volunteers are all on the line; they can be visited frequently by the Sergeant-Instructors; being under one departmental head, arrangements can be made to send them to the nearest rifle-range for the musketry course, or to bring them in to a central camp of exercise. The non-railway volunteers in small out-stations would be men whose duties take them out into camp for the greater portion of the winter, they would have no local rifle-range; and, as already remarked, they could not be concentrated at head-quarters for a camp of exercise. They would be only nominal volunteers. At the most, it would be sufficient in the case of men of this class to make it a condition that they must join if there is a detachment of volunteers where they are stationed.

All suggestions that have been made so far with a view to the introduction of "compulsory volunteering" have dealt with the question as affecting Government servants only. It seems to me, however, that any scheme that would exempt not only an important section of Government servants, but also the non-official Europeans and Eurasians resident in India, from compulsory service, would not be worth introducing. The non-official community supply a large proportion of our best volunteers, but even among them there are men who shirk this duty, and it is well known that some firms discourage volunteering among their employés. If we are to have "compulsory volunteering" at all, it is most important that some means should be devised to include in it *all* Europeans and Eurasians, official and non-official, within certain age limits. The only effective method would be an Act of the Legislature, requiring all European British subjects in India to serve for a specified period in the volunteers, if resident in stations where suitable arrangements can be made for their training. As far as I am aware, the Government of India are competent to pass an Act to this effect. It would remove all difficulties.

If, however, this suggestion does not commend itself to Government, and if the difficulties surrounding "compulsory volunteering" are considered insuperable, the only alternative is to make volunteer-

ing more popular by granting some personal concessions which would benefit all classes. Even if "compulsory volunteering" were introduced, some personal concessions would be advisable as a *quid pro quo*. Concessions of various kinds have been suggested from time to time, and they were all carefully considered by the Volunteer Committee of 1892. The conclusions arrived at by the Committee were summarised in paragraph 7 of their report, which is of sufficient importance to be quoted at some length. "On the question of personal concessions to volunteers the Committee have been necessarily guided by the instructions of the Government of India, when constituting the Committee, that in the opinion of His Excellency the Governor-General in Council, it would be preferable that any further encouragement to volunteering should take the shape of assistance to corps as a whole, rather than the form of special privileges to individuals, which would not be shared by the community to which they belong. The concessions and privileges recommended to the notice of Government, some of them on very high authority, in the papers placed before the Committee, are numerous, but two of them alone would, if they were granted, ensure a very large increase to the strength of the force, and would continuously maintain in it trained and efficient volunteers. The most successful method of securing a sustained attachment to their duties as volunteers of the poorer classes, who form the great majority of the European and Eurasian population of India, would be a system by which it is made to the personal advantage of each to be, and to remain, an efficient volunteer. And in the absence of any such personal concessions, there is much reason to fear that the interest which in some parts of the country has been lately roused will abate, and that the strength of the force will then be largely reduced. It is true that in the event of actual danger in India, the recruitment of the Volunteer Corps would be instantly stimulated, but it is on such an occasion that it is least expedient to exhibit to the country any indication of excitement and alarm. The concession of a month's service to count towards pension for every year of efficient volunteer service—a concession similar in character to that which it is believed has been given more than once for service on famine duty—would probably enlist every available officer in the ranks of the volunteers, and the exemption of efficient volunteers from income-tax on the terms and to the extent granted to the regular army would have nearly equal effect among the non-official classes of the community."

There can be no doubt that if the two concessions recommended by the Committee were granted, the result would be a very considerable increase in the number of volunteers. The concession of "a month's service to count towards pension for every year of efficient volunteer service" would appeal strongly to Government servants of all ranks, and would attract even the officers recruited in England to whom I have referred above. The second concession proposed, "exemption from income-tax," is the only privilege enjoyed equally by

officials and non-officials. Both these proposals were rejected by the Government of India, and no doubt there is much to be urged against them, both on financial and political grounds. If these concessions were granted, the Indians would say : " You are giving the Europeans privileges which you won't allow us the opportunity to earn." But perhaps the time has come to brave such criticism. At the present moment, it is hardly likely that any responsible authority would advocate the enrolment of Indian volunteers. And if the enrolment of Indians is impossible, that in itself should not be considered a bar to measures calculated to increase the strength of the European and Eurasian volunteers in India. If the concessions proposed were granted, the Government could safely insist on a higher standard of efficiency in return. The two concessions proposed by the Volunteer Committee may be described as " permanent," as distinguished from " occasional" concessions, such as reduced fares on railways and passages on trooships which were advocated by Major Hawkins of the 1st P. V. Rifles in his able paper published four years ago in the *Journal of the United Service Institution of India*. Personally, I do not think such " occasional" concessions would have any *appreciable* effect on volunteering. To quote from an opinion recorded by Colonel J. H. Rivett-Carnac, C.I.E., A.D.C.: " Concessions, if made, must be fitted to the several classes interested. To the poor Eurasian clerk, a reduced passage home would be of no advantage. But this would exactly fit the railway mechanic, or small tradesman. A railway ticket at half price would suit the men who travel daily from Serampur to Calcutta, and back. But it would be no concession to the planter in an out-of-the-way district who seldom sees the line." The Government should, therefore, if possible, stretch a point to grant both the " permanent" concessions proposed.

In the event of " compulsory volunteering " being introduced, especially if coupled with concessions, it is not thought that any special rules would be either advisable or necessary as regards length of service. Any limitation of the period of " compulsory " service might have an undesirable effect on volunteering generally. There seems to be no sufficient reason why the " compulsory volunteer " should not fulfil the conditions of paragraph 5 (1) of the Volunteer Regulations before being considered eligible for transfer to the Reserve. As a matter of fact, the Reservist's age in the Railway Corps, in which compulsory service is already the rule, has been fixed at a minimum of 47, while the non-railway volunteer becomes eligible at 35 years.

To sum up. Compulsory volunteering is certainly desirable, provided it can be applied so as to include all classes of European British subjects in India, official and non-official. It would be an advantage if it could be coupled with a *quid pro quo* in the shape of the two personal concessions recommended by the Volunteer Committee. If " compulsory volunteering " is impossible, the effect of the two personal concessions should at all events be tried, coupled with regulations requiring a higher standard of efficiency.

INFANTRY FORMATIONS IN THE PLAINS.

BY LIEUT.-COLONEL C. H. CLAY, 2/8TH GURKHA RIFLES.

Infantry Training, 1905, lays stress on the great importance of the formations adopted in the vicinity of the battlefield, and, in section 100, describes very briefly, the use of line or lines, of company columns. The extent, however, to which these formations can be employed in moving across country, especially in the wide open plains of India, does not appear to be generally recognised, for it is by no means uncommon to see battalions moving about in dense unwieldy masses of columns or quarter columns. The latter, for parade purposes, may be alright, but for manoeuvring should, except under special circumstances, be very sparingly adopted, for they render marching difficult, are very hot and dusty for the men, are slow to deploy from and offer an ideal target for artillery. What is wanted in the plains is a formation that will lend itself to the comfort and convenience of the marching troops, present a difficult target to hostile artillery, ensure a rapid deployment for attack or defence, and render it easy to take ground rapidly to front, flank, or rear. That all this can be done by the intelligent application of the principle of lines of columns as laid down in Infantry Training it is the purpose of this article to show, and it may be mentioned that the conclusions arrived at are the result of a prolonged test carried out by a battalion that had not, hitherto, had much opportunity of working in the plains, during a march of several hundred miles, and during two subsequent training camps, while the Brigade formations to be described were also tested on manoeuvres and found to give excellent results.

The march alluded to was invariably conducted as in an enemy's country. Consequently, the battalion scouts were always sent on ahead, and here it may be pointed out that for this kind of work it is no use to send the scouts a few hundred yards ahead. They should be worked at least from one to two miles ahead of the column and keep up communications with it by means of signalling, connecting posts, etc. Having gone some distance, the scouts are told that an enemy is ahead, or, better still, a party of men has been sent on ahead to represent the enemy. This news is sent back, the scouts proceed to search out the foe, and the battalion assumes what we may call "Preparatory Formation." This consists of the line or lines of company columns as laid down in Infantry Training, and it is as well to have a normal order for this so that "Preparatory Formation" can be taken up on a signal from the C. O. For instance, it can be arranged that the leading double company on the line of march always doubles out to the right, the next D. C. to the left, the

third D. C. to the right, and the fourth to the left, taking up their intervals and distances on the move. As the limit of the width of the area of ground swept by shrapnel is only about 25 yards, the interval between double companies should be at least 50 yards, but for purposes of freedom of movement and subsequent deployment, it is more convenient to fix the interval at about three hundred yards. The distance between the lines depends mainly on the forward effect of shrapnel, and should, consequently, be over three hundred yards.

Having got into their positions in the "Preparatory Formation" the battalion moves on, the double companies moving in any formation their commanders may direct, such as line of companies in fours, column of sections, echelon, and so on, and here it may be remarked that the more these formations are varied the better in order to give lots of practice to the officers and men and to accustom them to adapt their formations to the ground. The C. O. rides in the centre of the square and is able to control the whole movement by signal, and after a little practice it will be found that the battalions can be moved in any required direction with the greatest ease.

While the battalion is moving on in this formation let us suppose that these scouts have found the enemy and are engaged with them. We will also assume that the double companies in the first line are moving in line of companies in company column. From the increased firing in front, and from the fact that the battalion is gradually catching up with scouts, the O. C. gathers that they may want assistance. Accordingly the order is given for the leading sections to push on and support the scouts, keeping a distance of 300 yards behind them until actually required to reinforce. The rest of the first line follows 300 yards behind these supports, the second line as before being 300 yards behind the 1st.

Then it appears that the scouts are checked and cannot get on. They signal back for help; the supports push on and relieve the scouts who, according to circumstances, clear off to a flank, or stay where they are, till the battalion has passed and then form up in rear as of course they are not intended to take part in a regular attack. If the new firing line can push on it does so till checked, when it is reinforced by the sections in support, fresh sections being moved up to take their place. In this way the firing line is as necessary, continually built up until, possibly the whole of the first line is used up, when the second line takes its place and acts in the same manner. For a decisive attack the whole battalion can be piled up into the firing line, or any portion of it can be used to make a flank attack, while the second line is always in a position to meet a counter-attack from either flank. Should the defence weaken at any stage, the firing line can push forward sending on scouts, while the supports that have been up drop back into their original positions. In fact, in this formation a battalion can open and close like a concertina, without in any way checking the onward march. It is equally ready to move on in fighting formation or to drop back into its preparatory formation. When practising these

advances it is well to accustom the men to take every opportunity of reforming, so as to keep sections together as long as possible, and it is an excellent plan to detail one or two mounted officers to represent hostile cavalry, and to make unexpected charges on any portion of the battalion that may offer a chance. At first it will be found that the charges often get home, but in a few days the company commanders and sections become so alive to their danger and so prompt to meet it that they are able to drive off the cavalry without difficulty and resume their place in the formation without much loss of time.

For retirement the same formation is equally suitable. The second line moves off, followed at 300 yards by the first line which is covered well to the flanks and rear by scouts. If the enemy follows up and presses the scouts, a firing line, with support at 300 yards, is dropped to relieve the scouts and the retirement is continued, more supports being dropped as the firing line has to be reinforced until, if necessary, the whole battalion takes up a defensive position or delivers a counter-attack.

For a movement to either flank it is only necessary for each double company to wheel up in the required direction, and the advance or retirement is continued exactly as before.

Of course there is no necessity to stereotype the "Preparatory Formation," and it is most undesirable to do so. It can consist of three lines, if desired, or one line, or there can be three D. C.'s in the first line and only one in the second. The great point to insist on is that the battalion should always be well screened by scouts to front, flank and rear (as necessary), and that when the enemy is found, a firing line should be extended to relieve the scouts, that the firing line should be followed at 300 yards by supports, and that the remainder of the first line should follow the supports at some 300 yards' distance, the second line being kept still further back, in any convenient formation, in readiness for any task that may be entrusted to it. When advancing or retiring it should be arranged that, if possible, only one line advances at the same time in order to present as small a target as possible to the enemy.

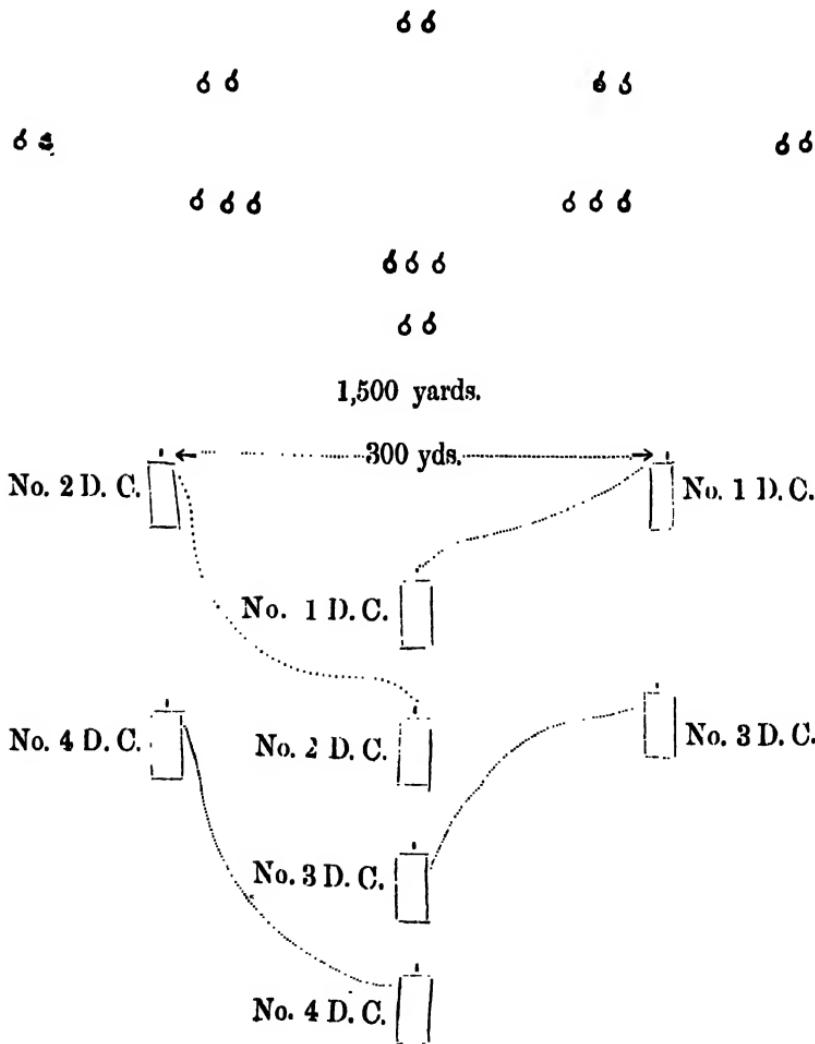
The formation for attack advocated above was tested during manœuvres alongside three other battalions each of which adopted a different formation. The position attacked was occupied by several gunner officers who were asked to watch the advance carefully and see which battalion offered the least mark for artillery fire. They all agreed that the battalion attacking in the manner described offered a very poor target for artillery, whereas some of the other formations were very vulnerable.

A brigade can work in precisely the same manner, the battalion taking the place of a double company. Thus, if in a "Preparatory Formation" of two lines, the first line could consist of two battalions each in battalion "Preparatory Formation," with an interval from 300 to 500 yards between them, while the second line would follow in a similar formation at a distance from 400 to 800 yards

from the rear of the first line. A brigade in this formation can, as in the case of a battalion, be launched to the attack, can retire, or be moved to a flank with the greatest ease, while the second line is well placed either to reinforce the first line and drive home an attack, to move round for an enveloping attack, or to wheel up to meet a flank attack.

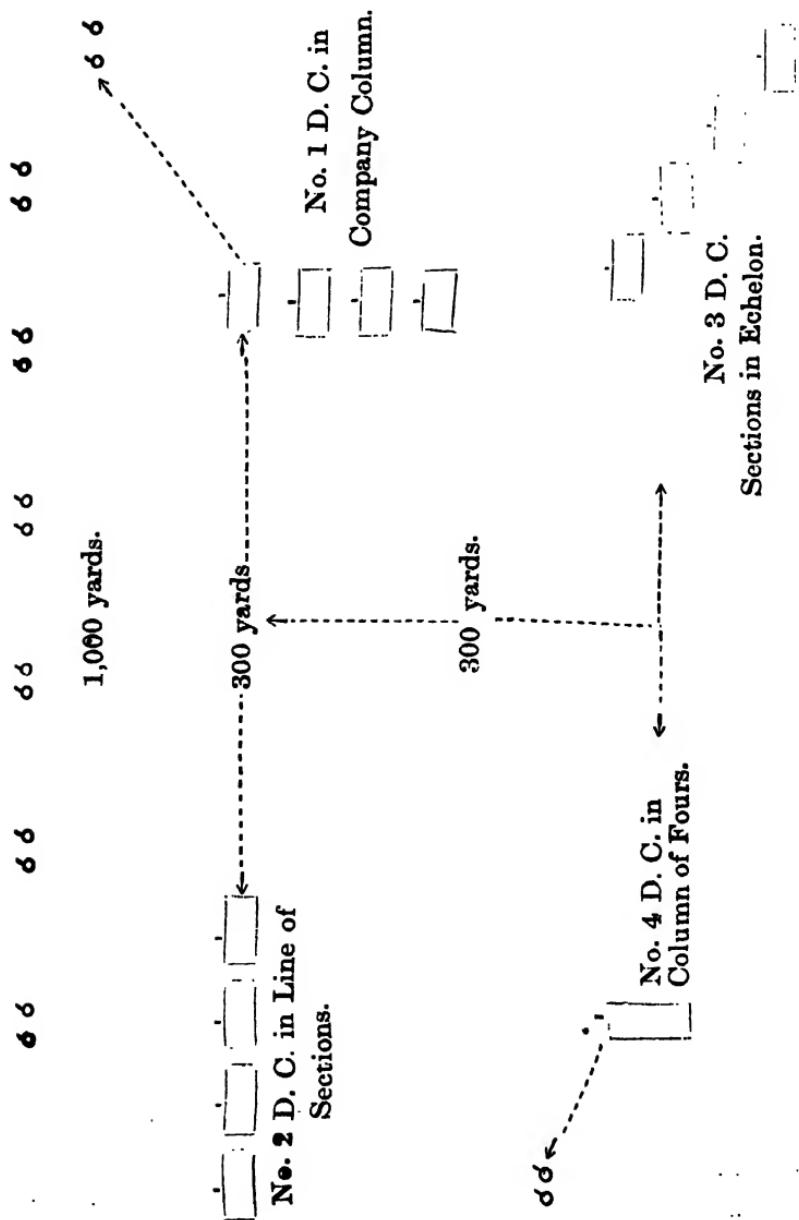
Seen from a distance this formation looks rather dense, but, in reality, when fully opened out no closed body larger than a section need be exposed to artillery fire and should the latter be feared, the sections can extend.

1ST STAGE.—Battalion in Column of Route covered by Scouts, ordered to take "Preparatory Formation."



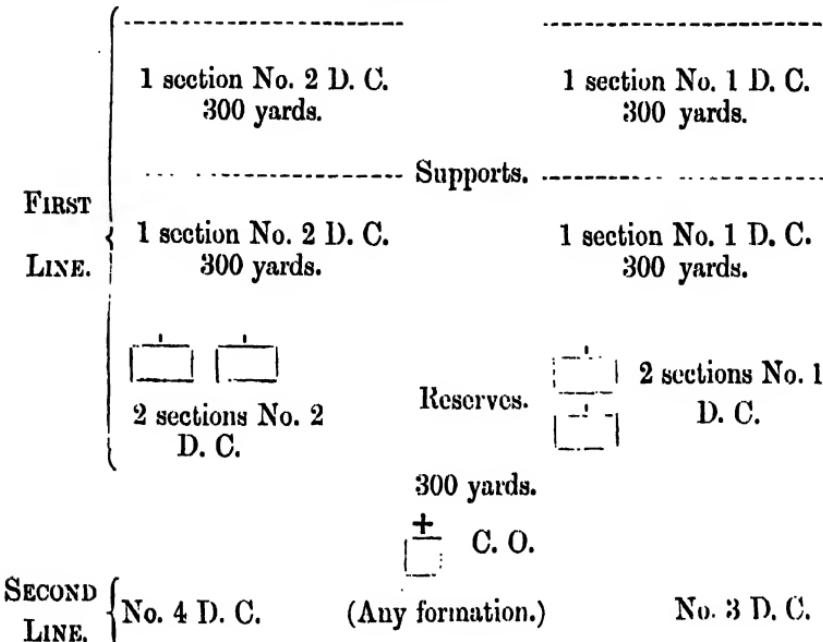
2ND STAGE.—Scouts in touch with the enemy, the battalion advancing to support them

NOTE.—When companies are small it is advisable to work Double Companies as single ones otherwise Sections are so small as to be of little use. In these diagrams the D. C.'s are supposed to be acting as single companies.

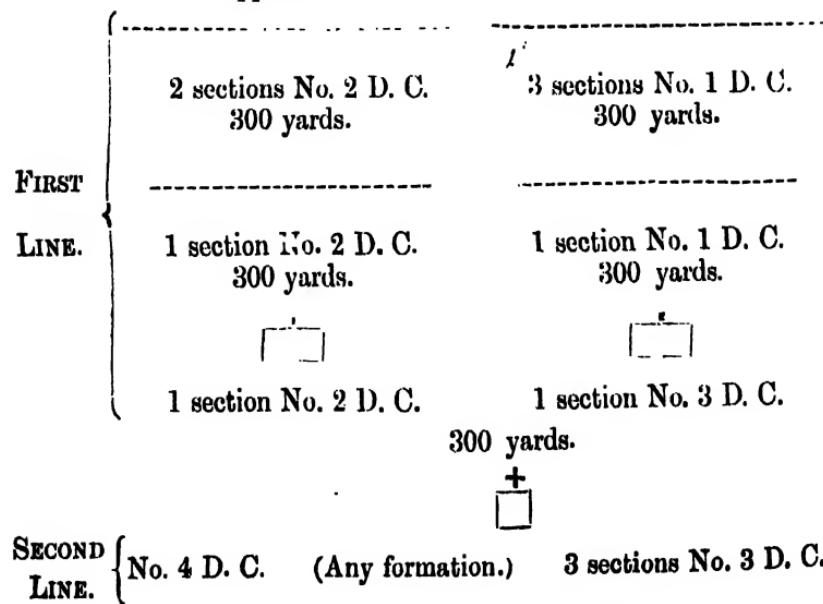


3RD STAGE.—Scouts checked by the enemy, firing line coming up to relieve them, followed by Supports, etc.

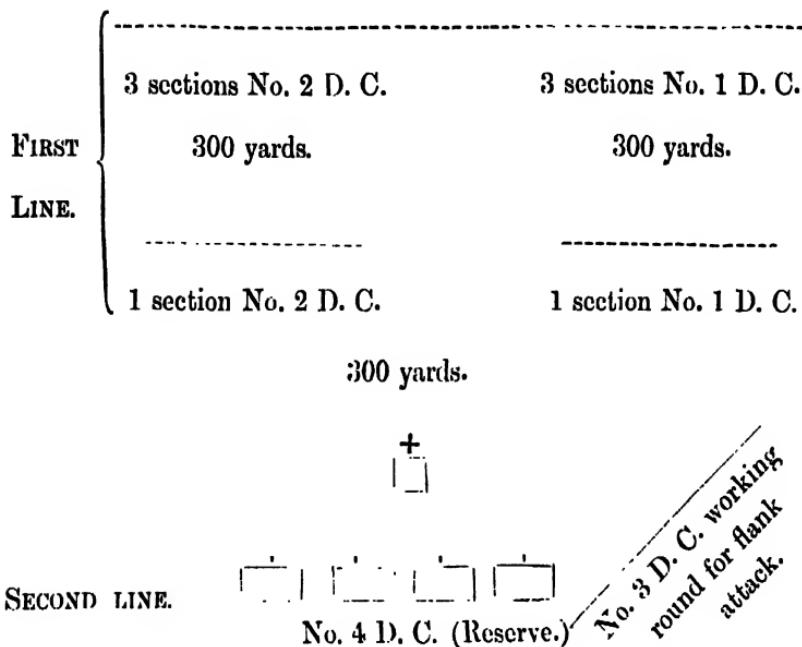
6 6 6 6 6 6 6 6 6 6
300 yards.



4TH STAGE.—Scouts cleared off to a flank after firing line had passed through them. Firing line reinforced by Supports.



5TH STAGE.—The whole of the 1st line in Firing Line, and Supports. Part of 2nd line held in Reserve, part making a flank attack.



6TH STAGE.—Final Stage of Attack, 1 Company still in Reserve remainder in firing line.

No. 2 D. C. Nos. 1 & $\frac{1}{2}$ No. 4 D. C.

300 yards.

$\frac{1}{2}$ No. 4 D. C.

A BRIGADE IN "PREPARATORY FORMATION."

[Diagram] Represents a Double Company.

1ST LINE.

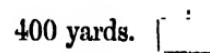
No. 2 Bn.



300 yards.



400 yards.



No. 1 Bn.



↑
300 yards.
↓

↑
300 yards.
↑



400 yards.

♂ Brigadier.

2ND LINE.

No. 4 Bn.



300 yards.



← 400 yards. →

No. 3 Bn.



↑
300 yards.
↓

↑
300 yards.
↓



MOUNTAIN ARTILLERY ON THE MEKRAN COAST IN 1910.

BY LIEUT. H. E. KENYON, R.A.

The importation of arms into Afghanistan and the arming of the tribesmen is a great and serious danger which has been growing up on the Indian Frontier during recent years. The rifles come from Europe and the port of distribution is Muscat, the capital of the protected State of Oman. It is only recently that this traffic in arms has reached alarming dimensions calling for strenuous and systematic steps to suppress it.

The East India Squadron has been largely employed in patrolling the Gulf with the object of searching *dhow*s and stopping all carrying arms to the Mekran Coast. These vessels are however not sufficient in themselves, owing to their size and draft; what are required are fast vessels, of small draft, capable of pursuing *dhow*s into shallow waters and creeks. With this object a number of tugs were sent up from Bombay and these patrol closer and are able to examine the various creeks. Consequent on these measures the arms traffic which had doubled between 1906 and 1908 fell in value from £237,000 in 1908 to £103,000 in 1909 and still less in 1910. In spite of every precaution however *dhow*s do succeed in getting through the blockade and arms have been landed on the Mekran Coast.

The gun traders' methods are roughly as follows:—The arms are landed on to *dhow*s and brought across to the Mekran Coast. The *dhow* is met by a small caravan who unload the rifles and ammunition, load them up on camels and carry them about 20 miles inland where hitherto they have been unmolested. These small parties store all the arms so collected at a dépôt, adding to them as occasion offers. There they await the arrival of the Kafils from Afghanistan consisting of from 2,000—3,000 Afghans who visit these dépôts, take over the arms and convey them into their own country.

It was therefore with the object of operating against these coast caravans and dépôts that early in 1910 it was decided to send a small landing force up the Gulf in addition to the naval forces patrolling the coast. The Mekran Coast is practically desert, a few small scattered villages here and there located where water is easily obtainable. The actual beach is hard and excellent for marching, but inland the country is chiefly soft loose sand and shale, up to the foot of the hills about 20 miles inland. The most important place on the Mekran Coast is the telegraph station of Jask, 600 miles from Karachi, and 127 miles from Muscat on the Arabian Coast.

The buildings consist of quarters for the telegraph officials and barracks for one battalion of native infantry. The whole station has a strong barbed wire defence round it and could offer strong resistance to an attack by irregular troops.

At Jask is the Persian overland telegraph line, also submarine cables to Muscat, Karachi and Gwadur (half way between Karachi and Jask). Besides these there is now a powerful wireless telegraph station at Jask, and it is by means of this wireless station that the Commander-in-Chief of the East Indian Squadron, Admiral Slade, obtained information from the intelligence officer at Jask of the reported movements of the gun-runners.

The greater part of that portion of the ships' companies of the cruisers ordinarily available for landing operations were already employed in small boats on the coastal blocking cordon. Thus the Navy were unable to land a force sufficiently strong to ensure success against the bodies of Afghans, or others, who might be protecting the depôts, apart from the fact that such operations are outside their province. The despatch of a military force was therefore deemed necessary. Such an expedition being of the nature of a "Raid" the main factors to be considered were, firstly mobility, secondly capacity for rapid embarkation or disembarkation, thirdly suitability for prolonged periods at sea on shipboard. With reference to this capacity for rapid embarkation or disembarkation work it should be noted that, if artillery is to be included, mountain or pack artillery is the artillery most suited to the work. Owing to the nature of the equipment it can be easily stowed in lifeboats; it takes up very little room; its presence cannot be detected till disembarking commences; and even then it is extremely doubtful if the presence of a gun would be detected until it had been assembled. When re-embarking it can be used up to the last moment in covering the withdrawal and can then be rapidly taken to pieces, placed in boats, and taken away. In all landing operations therefore mountain or pack artillery should be included, for, even if heavier guns are to be brought up eventually, landing them must be a lengthy and dangerous duty in the presence of an enemy whilst the mountain gun, as has been shown, can be easily landed and can then be manhandled or transported by hand wherever required. They do not necessarily require mules, though one mule per gun will add greatly to mobility as draft can be used; and the same holds good in re-embarkation. It might be urged that the Navy could themselves perform these duties with their own guns. This is true to a certain extent and no doubt they would render great assistance, but, on the Mekran Coast, battleships are often unable to approach safely within 2 or 3 miles of the beach, owing to its shelving nature and therefore would be firing at very much longer ranges than the guns on the shore. Also (I am open to correction) I do not think the Navy carry any shrapnel shell. This is a very serious drawback for such work, as the effect of bursting shrapnel over an enemy has a far greater stopping effect than bursting common or high explosive shell which, after all, have been given to the Navy for use against other battleships and are not intended for use as a man-killing projectile.

To return to the operations of 1910: on 15th January orders were received for the mobilisation of one section of No. 31 Mountain

Battery with 36 mules to be ready to proceed to Bombay on receipt of further orders. There was of course much speculation as to what the ultimate destination of the section would be, but the only further information received was that "the greater part of the time would be spent at sea." Another order stated that "all mules were to have their shoes removed," so it may not be out of place to mention here that mountain battery mules do not, in the ordinary course of events, wear shoes at all. On 17th January orders were received to proceed to Bombay on the 19th and the requisite rolling stock was at once prepared. The strength of the section was 2 B. Os., 1 N. O., 41 gunners, 44 drivers, 8 followers and 36 mules and the train was composed of 2 brake-van - 2 wagons (covered goods), 4 wagons (horse), 1 composite, 3 third class compartments. Two Bunnias also came to provide rations, etc., as far as Bombay. They should have returned from that port but they absent-mindedly walked on to the lighters and, before they realised their mistake, they found themselves sailing from Bombay with no prospect of doing any business for some weeks at any rate. The first intimation we had that they were on board was a petition from them to the effect that they had no opportunity of making any money and might they have compensation.

The section left Ghangoray (Dehra Dun) on the 19th January 1910 and the train left the station at 1-5 P.M., it having taken about half an hour to entrain. The Railway authorities had instructions to run us through as fast as possible, and so well did the O. and R. R. act up to them that at the few stations we did stop at, the station-master invariably greeted us with "you are travelling a tremendous pace. Where are you going to?" But this was just what we did not know. However on the morning of the 20th we found it all in the *Pioneer*—strength of the force, ship, destination and object. The good work of the O. and R. R. was however neutralised when we got on to the G. I. P. No time-table had been drawn out for us. Short halts of 10 minutes here and there were occasionally allowed, but these were not of the slightest use for feeding and watering animals, and cooking rations, etc. Eventually we had to make our own arrangements with the station-masters for suitable waits from 1 to 2 hours. We arrived at Bombay at 7 P.M. on 21st January, detrained at once, watered the mules, and, after a veterinary examination, they were led straight on to the lighters and towed off to the R. I. M. S. "Hardinge." Guns, stores, saddles, fodder, etc., were also sent off as rapidly as possible and at 10-15 P.M. (3½ hours after the train had arrived) the "Hardinge" weighed anchor and we left Bombay. The whole force was carried on the "Hardinge" and consisted of the following details:—

1 Section No. 31 M. B.—36 mules.

1 Section 3rd Sappers and Miners—6 mules.

4 Cos. 123rd (Outram's) Rifles (with 2 maxim and 10 mules).

51 Army Bearer Corps.

Field Hospital. . . .

30 S. and T. with 71 mules.

making a total of about 600 officers and men and 123 mules. From the composition of the force it will be seen that the three conditions were fulfilled, which have just been enumerated. The force was sufficiently mobile; it was suited to rapid embarkation and disembarkation; and the low number of animals rendered it suitable for prolonged periods at sea. The whole was under the command of Colonel Delamain, D.S.O., Commanding 123rd (Outram's) Rifles.

The following day a certain amount of consternation was caused by a report that no trace could be found on the ship of either of the guns. The fact was that the Indian Marine Officers had taken absolute charge of the embarkation and, not unnaturally, had failed to recognise in the various pieces of heavy metal they took on board the component parts of a mountain gun. These had been placed practically at the bottom of the hold and then several thousands of maunds of hay, *bhoosa*, kit, etc., had been stocked on top of them; consequently the greater part of the next day was spent in digging out the guns.

On the sealed orders being opened we found that we were to proceed at once to Khorlash about 900 miles from Bombay, on the Mekran Coast and close to Jask. There a portion of the force was to disembark and capture an arms dépôt which was supposed to be from 15 to 20 miles from the coast. We arrived at Khorlash at 7-21 on the evening of 25th January and the disembarkation commenced at once of the section mountain battery, 200 men from Outram's Rifles, with 2 machine guns, and about 40 mules for transport. In addition to these we were to have 17 sailors from the flagship, who were to form a demolition party and destroy any arms or ammunition which we might capture. We were all of us quite new to disembarkation work, and the fact that it had to be done in the dark did not make it any easier. The "Hardinge" had to lie off about 2 miles from the beach and men and mules had to be towed ashore in the life boats. The absence of suitable boats for transporting the mules was a very great hindrance.

The mules were slung off the ship into the life-boats and they had only the curved steel bottom of the boats to stand on. Consequently in their first struggles on being unslung they frequently fell down and it was fortunate that none of them were seriously hurt. Later on, when they had learnt what was expected of them, they used to stand perfectly still, though even then a sudden jerk on the tow rope or an extra large wave would very nearly throw some of them down. Had flat wooden bottoms been fitted into the mule boats a great deal of time and trouble would have been saved. The method of unloading the mule boats was to run the boats on to the beach, push them broadside on, and then 6 to 10 men would rock the boats till the mules jumped out to save themselves from falling. This at first was a job taking frequently $\frac{1}{2}$ hour, but later on the disembarking of 8 mules from a boat was done in from $\frac{3}{4}$ to $1\frac{1}{2}$ minutes, as the mules used to jump out the moment the boat touched the

ground. In fact, when re-embarking again, a man had to be told off specially to watch the mules and prevent those in the boat from jumping out again. On this first occasion it took nearly $\frac{1}{2}$ hour to unload some of the boats. This coupled with the fact that there were only 2 launches for towing made the disembarkation slow work. There were 8 mountain battery mules or 10 S. and T. mules in each boat and each tow consisted of two mule boats on this occasion. It was a bitterly cold night and the beach parties had to work in water up to their waists for $\frac{1}{2}$ hour or so and then shiver on the beach for the best part of an hour till the next tow arrived. With more tugs there would have been less waiting and the ships would have been emptied quicker. The flagship sent a large beach party to assist and these men were very glad to be told at 4-30 A.M. that the approaching tow was the last and they might return to their ship when they had got the mules out. All this time the tide had been going out, consequently the last lot of mules had to walk about 600 or 700 yards through the water to join those that had been previously disembarked. The naval detachment worked with renewed energy in their anxiety to get back to their ship and we could hear their cheers as mule after mule was persuaded to jump out of the boat. These mules cantered through the water and across the sands by themselves, pulled up when they saw us through the darkness, stood for about $\frac{1}{2}$ minute, and then bolted. Six of them got away altogether and we did not see them again for some days. It was then 5-15 A.M. so that it had taken practically 10 hours incessant work to disembark 1 section 31 M. B. with 30 mules, 200 infantry with 2 machine guns, 40 S. and T. mules and food and water for three days.

We had commenced disembarking at 7-30 P.M. with the intention of doing a night march. Colonel Delamain decided the force must march at once so the mules necessary to fully equip one gun were selected and at 5-30 A.M. we started. The first five miles was over deep, soft, shifting sand and very difficult walking for man and beast. At about 8-30 A.M. we passed through a village and the infantry captured a man who said he knew where there was an arms dépôt. It was now getting hot and we were beginning to feel the effects of the night's work, all of us having been soaked from head to foot and half frozen in the intervals. The naval detachment were at a great disadvantage as they were wearing blue serge clothes and gaiters and straw hats and also carrying all the demolition stores and a large quantity of ship's cocoa and biscuits. Fortunately for them we were able to distribute some of their loads amongst the mules. Even so their task was a most difficult one and they earned the admiration of all by their grit. We were now on hard sandy desert with low sand hills about 1,000 yards away on our left flank. This continued for about 14 miles and then we turned northward into the foot of the hills. We had already passed three places, each of which our guide had assured us as we approached was the site of the dépôt, and we were all getting fairly "fed up." After 19 miles a halt was

called, and we discussed advancing further or halting. "Councils of war," they say, "never fight" and this one lived up to the reputation, for none of us were anxious to proceed. Colonel Delamain however determined to make one more effort, as the guide was more assertive than ever that we really were at the place, and we had only gone about 600 yards when fire was opened straight in front of us and of course all our troubles at once departed. It turned out that there were only about 30 Afghans in one sangar but it was two hours before the infantry got into the dépôt and they had fired 3,000 rounds and the gun 18, before the last of the enemy bolted. We were much too tired to pursue them and there was really no reason to as we had accomplished the object of our journey and captured the dépôt. We found two men dead in the sangar and another wounded man, who died during the night. We captured 760 rifles, nearly all of the Martini-Henry carbine pattern, 80,000 rounds of ball ammunition, besides revolvers, bayonets and gunpowder. After we had had a short rest we made our way back to the camp which was about $\frac{1}{2}$ mile away on the bank of the Jagin river (and about a mile from the village of Hissar). The naval detachment then proceeded to destroy the arms and ammunition. The rifles were sewn up in sacking and the ammunition and tin powder flasks were in wooden boxes. They were all unpacked and a bonfire lighted from the sacking and wood and all the ammunition was burnt. The rifles were made up into bundles and blown up with gun-cotton slabs. It took about two hours to destroy them all. The following morning we commenced our march back to the ship which had gone on to Jask. We soon began to feel the effects of the previous day, and by the time we had done over $16\frac{1}{2}$ miles' march we had all had enough. The following day we marched another 17 miles to Jask where we were to re-embark. We had all had enough of marching over sand, and at one point where we tried to leave the beach, which is excellent for marching on, and cut across, we got into soft sand and the whole force automatically halted and after a rest we made our way back to the beach again. We all re-embarked at Jask that day, 28th January, and very glad we were to be back on board again.

For re-embarking the mules from the beach into the life-boats two systems were tried—one consisted of shares with hoisting tackle, the other of rafts. The former was not a success and the latter method was invariably used on all subsequent occasions. The raft consisted of 4 mule standings lashed together and buoyed up by 12 empty water casks from the ship's life-boats. The mules were led out into the water up to their knees and then they jumped up on to the raft which carried one mule. The raft was then pushed out by about 8 men into from 4 to 5 feet of water and kept close against the life-boat's side. The driver and the mule were halted at the end of the raft furthest from the life-boats and the other end was hauled up about a foot out of the water and made fast. The driver would then walk along the raft and himself jump into the life-boat and the

mule almost invariably jumped in after him without any delay. If the driver only handed the leading rein to another man in the boat the mule almost always refused to jump in, and, in the subsequent efforts, to get him in, he generally fell off into the water and the performance had to be gone through again. The S. and T. mules were often lifted in, their forefeet being lifted over the boat's gunwhale and then a push behind usually sent them in. Under favourable conditions 8 mules could be loaded up in from 10 to 15 minutes, the first 4 taking under 4 minutes. From the boats they were hoisted up on to the "Hardinge" again by the ship's cranes.

As it turned out, we were to have no more opportunities of capturing arms depôts though we disembarked on many other occasions in the hopes of meeting a party. We also searched several *dhow*s but always drew a blank.

One of the chief points to remember when boarding a *dhow* is to come alongside on the opposite side to that on which they have lowered their sail as an old trick of theirs is to suddenly drop the sail over the side on top of the boat, whose occupants are then entirely at their mercy. When searching a *dhow* the crew consisting of from 8—10 men is collected at one end under a guard and then a working party overhauls all the cargo until satisfied there are no arms on board. A rope is also always passed underneath the *dhow* and drawn along from end to end to make certain that nothing is hanging underneath, as one of their favourite devices is to throw the arms overboard when in danger of being searched and make them fast to the bottom of the *dhow*.

On two occasions we put into Muscat to coal remaining there several days, and on each occasion we saw quantities of cases containing arms and ammunition stacked on the quays. Muscat is a very picturesque harbour, and though the streets are seldom more than 6 feet across and swarming with people, the whole town is remarkably clean. There are two formidable looking fortresses, one on either side commanding the bay and town and bristling with guns. History relates that they have only fought once, and then it was against each other, but the range was too great for the guns and no damage was done. It is also stated that if their guns were fired now the shock would bring the forts to the ground.

So much time was spent on boardship that it was very difficult to keep men and animals fit. For the greater part of the day squads were kept doubling round the small portion of deck available and all the mules were walked round for about 10 minutes every day. This is a most important point to remember when animals have to be kept for a long time on boardship. Even 5 minutes' exercise is most beneficial. We landed on several occasions for exercise and bathing and the officers had some tennis at Muscat and cricket at Jask, so managed to keep fairly fit. After having disembarked and re-embarked several times men and mules soon learnt their work and everything went very smoothly. Eight M. B. mules or 10 S. and T. mules were put in one boat with 4 or 5 drivers. In

smooth weather the whole of the M. B. section, less the mules, and a proportion of drivers who went separately, went in two boats, each boat contained one gun, 48 shrapnel, 5 common shell, 15 men, all the saddles for that subsection and 10 *pakhals*.

On one occasion we re-embarked by night and we found the ship's search lights of the very greatest use in getting the mules on to the rafts and into the life boats.

Swimming mules ashore was only tried once. A boat was attached to a ship's launch and then the 1st mule was lowered into the water and turned loose. By the time the 3rd mule was in the water the unfortunate 1st mule had been swimming hard for about 10 minutes so we decided to push off with the three mules in tow. There was a very strong current running and the launch therefore could not go slow enough for the mules. Consequently all three were soon on their backs and were only kept from drowning by their heads being hauled up alongside the boats. When we reached the beach they were almost too exhausted to stand and the experiment was not tried again. On another occasion when anchored off Jask we were held up by jelly fish, of which there were thousands round the ship, and we were unable to get going again until a diver from the "Philomel" had been at work for several hours scooping jelly fish out of the various pipes connecting with the engine-room. Water snakes were also very common and frequently came through into the engine room. But these incidents enlivened proceedings until at 4 A.M. on 1st April, after being practically 9 weeks at sea, we received instructions to leave Jask with sealed orders which, on being opened at 12 noon, were found to contain orders for our return to Bombay *via* Karachi.

It was then getting decidedly warm and all of us had enough cruising for the time. We got to Bombay on the 6th April and the section was sent to Kirkee where it had to remain ready to start at 24 hours' notice in the event of more trouble.

But nothing more occurred, and on the 11th June 1910 the section was demobilised and ordered to return to Dehra Dun where it arrived on 1st July 1910, the animals looking fitter than they have ever looked before or since.

The experiences gained during the operations were valuable. Practically all are points which should be universally known to us who at any time may be called on to participate in amphibious operations. The necessity for the adequate provision of tugs and boats, with the proper equipment of the same, is shown by the delays caused in landing even our small force. These delays also prove how greatly the presence of animals complicates embarkation or disembarkation. If the unopposed landing of so small a force in calm weather, on an open beach, can take so much time, it is clear what careful arrangements must be made beforehand when operations on a large scale are being prepared. Finally we may note what a difference it makes when both men and beast have acquired what may be called the "Boat-habit."

USE OF TOBACCO IN THE ARMY.

By LIEUT.-COLONEL P. HENRY, I.M.S.

Tobacco is generally used for smoking, less frequently for chewing. Whilst one would not say that tobacco is a necessity to the soldier, either in garrison or in the field, there is a general consensus of opinion among military medical officers that its moderate use adds considerably to the comfort and happiness of those who indulge in it. The tobacco-smoker, when deprived of his pipe or cigarette, often feels the want of it more than he does of food. In moderation, after meals, tobacco-smoking promotes gastric secretion, aids digestion, and where the supply of food is deficient diminishes the sensation of hunger.

Korloff, during the Russo-Turkish War of 1878, studied its properties minutely in regard to blunting the sense of hunger, and as a result he recommended that a daily ration of tobacco be issued to the Russian troops. In the armies of the United States and Germany tobacco is one of the components of the emergency and ordinary ration respectively on field service; under the same circumstance it is periodically issued as cigarettes in the Japanese Army.

Smoking during the heat of the day, particularly while on the march, increases thirst and leads to unnecessary drinking. The same result follows the chewing of tobacco on the march, due to the loss of salivary fluids caused by frequent spitting. Tobacco may be used to overcome weariness, serves to relieve *ennui*, and on many of its *habitués* has a very soothing effect. We know that in standing camps, during periods of inactivity and inertia, the monotony of life sooner or later jars and frets the soldier; during these periods tobacco is used nominally to pass the time, but in reality in order to calm the unemployed nervous system. Under such circumstance there is the risk of its being used to excess and of its producing harmful effects, and men should be cautioned about this.

It has been estimated that in pipe-smoking the average consumption is something over half an ounce of tobacco a day, and that an ounce *per diem* is excessive. It is scarcely possible to state the minimum quantity that would be harmful to any one individual, but the occurrence of shortness of breath, palpitation, obscure pains about the region of the heart, nervous irritability with loss of appetite, are indications to reduce or temporarily abstain from the use of tobacco. More pronounced symptoms resulting from its excessive use are—loss of appetite, impaired muscles, energy, giddiness, alteration of vision, loss of memory, and progressive general weakness.

One has no hesitation in saying that tobacco is only harmful to soldiers with a highly neurotic tendency, and to those of insufficient will power to properly regulate and restrict its use. Whatever be the possible theoretical risks associated with its use, the records of our hospital, either in peace or war, do not show that tobacco-smoking in moderation is a serious cause of inefficiency or danger.

The amount of nicotine in tobacco smoke cannot be definitely stated as it varies with the kind of tobacco and the way in which it is inhaled, but only a small proportion of that contained in the tobacco passes over in the smoke. In snuff there is generally only a small amount of nicotine, while in chewing tobacco there is generally a varying amount of foreign matter, such as molasses.

The enjoyment of tobacco smoking has never been satisfactorily explained, and it is not even proved that nicotine is essential to the pleasurable results. The outcome of a vast number of experiments in connection with tobacco-smoking is that so far its effects are not definitely known.

One point appears to be quite certain—the tobacco habit cannot be compared with the use of such drugs as opium, morphine, cocaine or with alcohol, as it does not appear to be used for the purpose of producing stimulation or depression of the central nervous system, and it would seem to be doubtful whether the amount of nicotine absorbed has any action at all.

It is a curious fact that with many smokers, the pleasure of smoking is largely abolished when smoking in the dark, or in a stormy wind, and when the smoke is not seen.

One of the commonest effects of over-indulgence in tobacco is a chronic inflammation of the throat and upper parts of the respiratory passages, leading to hoarseness. This is explained by the constant action of an irritant alkaline vapour and pyridine (a material having the peculiar smell of burnt vegetable matter which is combined with the nicotine) and is not due to the nicotine itself. A similar irritated condition of the tongue is frequently met with especially when the hot vapour is directed on one part as in pipe-smoking, and it is sometimes stated that the constant irritation thus produced render the tongue and lips of the claypipe smoker more liable to cancer.

Dyspepsia, loss of appetite, and consequent loss of flesh, may be explained by the local irritation produced by the swallowed saliva. In the great majority of cases of chronic tobacco poisoning, the symptoms disappear on relinquishing the habit or even restricting the daily consumption.

The most wholesome form of tobacco-smoking is probably that of a pipe and next that of a cigar. Cigarette smoking is the most injurious, chiefly because the ordinary cigarette smoker inhales all the fumes which tend to irritate the throat and upper part of the air passages, etc.

The practice of cigarette smoking has rapidly extended in this country and is doing a considerable amount of harm to the male part

of the youthful population. Smoking of the *hookah* (in which the fumes pass through a bowl of water below the *chilum*), when the tobacco is pure, is probably one of the cleanest and most innocent forms of tobacco-smoking indulged in.

Moderate tobacco-smoking by fully developed and fully trained soldiers does no harm. It allays the feeling of hunger, in some unknown way soothes the system, and adds to personal comfort. When used in excess it is always injurious, especially in the case of untrained youths whose hearts are inordinately susceptible to its effects. The cigarettes now largely imported into this country and used by our troops are made from the most villainous refuse tobacco in the market. Last year one saw largely advertised a brand of cigarettes sold at 20 for 6 pies, in which the tobacco was uncured and half rotten. The form of cigarette smoking that has sprung up in the Army in recent years should be discouraged in every possible way—it can do nothing but harm. The most injurious part of this habit is inhaling the smoke. The tobacco sold in canteens, coffee-shops, regimental bazars and in cantonments generally, should be closely watched and controlled.

Tobacco chewing should be discouraged in the Army. Tobacco affects the system more directly when chewed; it leads to excessive spitting and subsequent thirst.

The use of strong twist or roll tobacco for the pipe should also be discouraged, it often disturbs the action of the heart in even the most hardened smokers.

The best time for smoking is after meals—it is then better enjoyed and has least injurious effects. Smoking during the actual hours of duty and on fatigue should be forbidden. It is better not to smoke just before commencing any work requiring much physical exertion.

Various orders regarding smoking have appeared from time to time, issued usually by commanding officers and general officers on their own responsibility, and from these one would abstract the following two. The first is with reference to the troops in the Irish Command:—

"The Commander of the forces has during recent visits to Military Hospitals been again struck by the harm that the increasing prevalence of cigarette smoking is doing the health of the Army. It is not confined to the Army, and Parliament is likely soon to deal with it as affecting the national health. Lord Grenfell appeals to the Irish Command to give earnest and early thought to combat what is gradually, but greatly, affecting its efficiency, and he requires all Commanding Officers to impress on those under their command the evils that inevitably result from this excess. He would point out that in other directions the health and well-being of the troops in this command have greatly benefitted from the loyal and intelligent co-operation of all ranks in giving effect to sanitary measures suggested by the medical authorities. He looks forward with confidence to a similar appreciation of his endeavour to mitigate the harm

done by excessive cigarette smoking, especially among the younger soldiers.

"With a view to helping men to overcome the habit, the Commander of the forces directs the smoking of cigarettes to be prohibited at certain times when, on the other hand, no similar restriction as regards pipe-smoking will be made. The smoking of cigarettes, therefore, will not be permitted when men are on fatigue or under arms on any occasion, including field operations and manoeuvres."

The following was published by the Officer Commanding a British unit:—

"It has been brought to the notice of the Commanding Officer by the Medical Officer and from other sources that a considerable amount of harm to the health of the battalion is being done by the very large amount of cigarettes that are being smoked by all ranks. The following order will be strictly adhered to from this date.

"Cigarettes will never be smoked by any officer, warrant officer, non-commissioned officer or man, when on duty whatsoever, that is, when on manoeuvres, field days, route marches, company parades, guard duties and fatigues, or when employed in any of the regimental institutes or any of the battalion offices, or when attending such offices."

It is an unfortunate circumstance that the habit of cigarette smoking has grown very considerably both amongst our European and Native troops in India. All boys in the service should be forbidden to smoke cigarettes.

The habit of passing the pipe from mouth to mouth should be stopped—disease is occasionally communicated in this way.

It is highly probable that both European and Native soldiers smoke more than the civilian class from whom they are drawn, for they have on an average more money to spend and more time to spare. Men who are going in for a competition in running, walking, rowing, etc., put themselves through a course of exercise, and either entirely relinquish, or greatly reduce their smoking. One is strongly opposed to such artificial aids to endurance as the use of Kola nut (even when obtainable in the fresh state when its reputed virtues are at their highest), chewing of coca leaves as used by the Peruvian post messengers and labourers, etc., which are said to banish hunger, thirst, and all sense of fatigue. One recalls an article written many years ago in, as far as one can remember, the *Nineteenth Century*, in which it was seriously proposed to supply all men with coca leaves (leaves of the *Erythrocyclon coca*) as a part of their emergency ration, these leaves to be placed inside the flap of the blouse in the same way as our men now carry the first field dressing !

INDIAN ARMY CASTES.

DOGRAS.

BY MAJOR L. S. BROWNE, 38TH DOGRAS.

Before proceeding with the history of the Dogras, it would perhaps be as well to explain how this designation has in a military sense come to be applied to all the inhabitants of the Rajput Hill States who are enlisted in the Indian Army.

The name is derived from the ancient and original name of the Jammu State which was called "Durgara." All the inhabitants of this State were styled Dogras, a term which it must be understood is used purely geographically and in no way refers to caste.

During the past 60 years only the name has been extended, as a term purely for military convenience to the fighting classes of Kangra, Chamba, and portions of Hoshiarpur, Gurdaspur and Sialkot.

The first occasion on which we became aware of the fighting qualities of the Dogras was probably during the defence of the Lahore Fort by Gulab Singh, who was a Jamwal. All his men were probably true Dogras from Jammu and termed themselves such, hence either from misapprehension or for want of a more comprehensive name all men enlisted from the Rajput Hill States have been given the same designation.

In ancient times the petty Rajput States of the "mountain kings," as they were termed by the early historians, were divided into three great groups, each of which was named after the State which held the position of head of the confederation.

These three States were Kashmir, Trigartha or Jalandhara, and Durgara or Dugar. We are here only concerned with the two latter, for there are no Dogras now in Kashmir. Each of these two groups was divided into eleven principalities, the names of which will be given hereafter; space does not admit of a separate history of each of these twenty-two States, but a short account will be given of the head State of each confederation.

Trigartha or Jalandhara.—Chief State, Katoch.—This kingdom is said to have been founded by a Rajput of the Chandrabansi race named Susarma Chand, who traced a mythical descent through more than 200 kings to a divine origin.

The Katoch tables state that Susarma Chand was the 234th Raja, that he originally ruled a kingdom at Multan and fought through the Mahabharat (B. C. 1200) on the side of Durjodhan, whose sister he married. After the defeat of Durjodhan at Thanesar, Susarma Chand retired to Jullundur where he founded the Katoch kingdom which was known as Trigartha, the name being

derived from the fact that it was watered by three rivers, *i.e.*, the Sutlej, Bias, and Ravi, in other words was contained by them. He is also said to have built the Kangra fort which in later times became the stronghold of the Katoch Rajas.

Except tradition there is very little to substantiate the Katoch claim to have ruled over this large tract of country, and probably the claim to Multan is mythical. But that this race did rule at Jullundur is very probable, for hill tradition is wonderfully true to fact, and beyond this there is some measure of evidence. Cunningham has a quotation in Sanskrit from the Puranas, the translation of which reads "Jalandhara that is Trigartta." This points to the two names having been synonymous in ancient times and both are found in the Raja Tarangini and seem to be used with the same meaning.

In the same history mention is made of a king of Kashmir who in A.D. 883 invaded the plains and compelled the king of 'Trigartta,' Prithvi Chandra, to pay homage (the Katoches are the only Rajput clan in the Punjab who use the suffix of Chand). Again Ananta of Kashmir (A.D. 1028-81) married one or even two of the daughters of Indu Chandra, King of Jalandhara, *i.e.*, the Katoch king. This latter fact is interesting as showing that the Katoches still held sway at Jullundur many years after the first Mahomedan invasion under Mahmud of Ghazni in A.D. 1009 when Kangra was sacked.

In later times the name Trigartta may have had a more limited meaning than formerly, and may quite well have been understood as referring to the land between the three tributaries of the Bias, *i.e.*, the Guj, Buner and Nigel. This land is referred to as 'Trigadh' in a letter from Amar Sing, Thapa, the Gurkha General to Raja Jit Singh of Chamba in 1807-08. 'Trigadh' here means Kangra.

It is just possible however that the Katoch kingdom formerly included two large provinces. *i.e.*, Jullundur on the plains and 'Trigartta' in the hills, the Rajas being addressed sometimes by one name, sometimes by the other, as Jammu and Kashmir are now used.

Dr. Vogel is of opinion that 'Trigartta' refers to the three tributaries of the Bias, for he says that the meaning of the Sanskrit word "garta" is ditch or water-hole, and could hardly be applied to such rivers as the Sutlej, Bias and Ravi.

Another point in support of Dr. Vogel's opinion is that if 'Trigartta' included the country between the Sutlej, Bias and Ravi, then the whole of the present Kangra district would have been contained in it. This being so it is difficult to understand how the Katoches allowed Rajput adventurers such as Nurpur, Suket, Mandi, and others, to seize portions of their territory without opposition.

Mythical as local accounts appear to be, there is no reason to question the great antiquity of the Katoch kingdom. It is indirectly mentioned by the historians of Alexander (B.C. 327), by Ferishta, in conneection with events that occurred in the 1st century,

by Hiuen Thsang, the Chinese pilgrim in the 7th century, and by others onwards down to the present day.

The kingdom on the plains probably began to dissolve after the great Rajput defeat by Mahomed Ghori in 1193, and it is very likely that from this time on, the seat of the Rajas was at Kangra. The Kangra fort was however chiefly in the hands of the various Mahomedan dynasties from A.D. 1337 until 1781 when through treachery it came into the power of the Kanhaiya Sikhs. These latter were turned out by the Katoch Raja Sansar Chand who held the fort till 1806, when he was subjugated by Ranjit Singh, who gradually brought all the hill States under his rule.

The origin of the word Katoch has not yet been definitely ascertained. It seems most probable that it was originally applied to that portion of the Kangra district which was held and ruled by the Katoch Rajas. Such family names have always been derived from the names of the countries over which the families ruled, as for instance Chambial, Mandial, etc.

Forster, the traveller, writes in 1798 : "I arrived at the camp of the Kangra, or as he is often called from a more ancient name of his country the Katochin Chief."

Local etymology of course gives various derivations, which though interesting are all more or less fanciful and need not be mentioned here.

Up to A.D. 1070 the Katoch kingdom remained intact under one Raja. At this period however a son of the Raja severed his connection with Kangra and made himself independent in the Jaswan Dun. The State of Goler was similarly formed in 1410 ; Siba was formed from Goler at the end of the 15th century and Datarpur from Siba about 1600. It will be noticed that these four States are either directly or indirectly offshoots of the Katoch kingdom. To this day no Katoch may marry into these four clans, but the four clans intermarry amongst themselves.

The remaining six States of the confederation, i.e., Nurpur, Suket, Mandi, Kulu, Bangahal and Kotlehr were founded at various times by Rajput adventurers from the plains of India. All the above clans are styled Mians (a title which will be explained later), and in addition the ruling families of the following three States, though the title was not conferred on them, are generally considered to be their equal in rank, i.e., Kahlur, Nalagarh, and Sirmaur.

Dūgar Group—Chief State, Jammu.—As before mentioned, there were eleven principalities in this circle which includes the hill territory between the rivers Chenab and Ravi. Originally the Jammu State was of but small dimensions, but owing to the machinations and treachery of Gulab Singh who annexed, ostensibly for the Sikh Durbar, all the neighbouring States, it has grown to its present importance and size. It is first mentioned in the 11th century under its former name of Durgara. The capital was then at Babapurā, now called Babor, 17 miles east of Jammu, which became the capital in the 13th or 14th century.

The State is said to have been founded by one Jambulochan, of the Manhas clan of Rajputs, who took the generic name of Jamwal from the capital.

Dr. Hutchison is of opinion that two brothers of the Manhas clan settled at Babbapura and Bhaο respectively at the same time. The ruling clan in the direct line of the latter State probably became extinct, and the former moved down and formed the kingdom of Jammu, absorbing that of Bhaο.

The present Maharaja is not the direct descendant of the old ruling line. This family was driven into exile near Dinanagar in the Gurdaspur district by Gulab Singh.

As the Katoches in the Jullundur group, so the Jamwals in the Dugar group, are responsible for the foundation of some of the principalities, i.e., Jasrota, Mankot, and Samba.

The remaining seven States were founded by Rajputs from India, i.e., Chamba, Chaneni, Behandralta, Kashtwar, Basohli, Bhadu, Badrawah. In addition the ruling clans of the following three States were and are now classed as Mians, i.e., Lakhnupur, Bhati, Aknur, all of them being offshoots of Jammu.

The following classes are represented in the Indian Army:—

1. Brahmans.
2. Mians or Jaikaris.
3. { Ranas.
Rajputs.
4. Thakars and higher grade Salaamis or Rathis.
5. Salaamis or Rathis of the lower grades.
6. Jats.
7. Ghiraths.

Brahmans.—This class was formerly more freely enlisted than at present. In the Dogra district they are divided into two classes, i.e., the priests and cultivators. The former are naturally not enlisted so will not again be mentioned, the latter are probably descended from the Brahmins among the first Aryan settlers in the hills, when caste prejudice was not so acute as in later times, and who had to earn their living more by manual than spiritual labour.

In features they are very like Rajputs but usually have a softer appearance which in some cases is almost effeminate.

As soldiers they are not in the same demand as Rajputs and Rathis, for they do not possess the same military instincts and moreover are given to intrigue.

Mians.—It has been explained that the hill country between the rivers Chenab and Sutlej was formerly divided into two groups, i.e., Jullundur and Dugar, each comprising eleven principalities. The twenty-two noble families of these States, with their collateral branches, formerly held rule in the hills and were and are now designated by the title of Mian.

The origin of this title is said to be as follows: After Akbar brought the hill States under his power about A.D. 1556 he adopted

the custom of retaining as hostages at his court a prince from each State, to ensure the fidelity of the hill chiefs. At the beginning of Jehangir's reign there were 22 such young princes (probably one from each of the above 22 States). To these the Emperor is said to have given the designation "Mian" which is a Mahomedan title. In Chamba it first occurs as "mie" on a copper-plate deed of Raja Bala Bhadra (A.D. 1589—1641) as one of the titles of his son and heir Janardan. From that time it came to be applied to all the descendants of the 22 ruling families, almost all of whom are still in existence, and where they are extinct collateral branches of the family still remain. A list of the Mian States and clans is given below :—

JULLUNDUR GROUP.		DUGAR GROUP.	
State.	Clan name.	State.	Clan name.
1. Kangra	Katoch.	1. Jamma.	Jamwal
2. Goler	Goleria.	2. Chamba	Chambial.
3. Siba	Sibaya.	3. Basohli	Balauria.
4. Datarpur	Dadwal.	4. Bhadū	Bhadwal. Padwal.
5. Jaswan	Jaswal.	5. Mankot (Ramkot).	Mankotia.
6. Nurpur	Pathania.	6. Jasrota	Jasrotia.
7. Kotlehr	Kotlehria.	7. Samba	Sambial.
8. Mandi	Mandial.	8. Bahandral (Bannagar.)	Behandral.
9. Suket	Suketr.	9. Kashtrwar	Kashwaria.
10. Kulu	Kolua.	10. Chaneni	Huintal.
11. Banghal	Bangalia.	11. Badrawah.	Badrawabia.
12. * Kahlur	Kahluria.	12. Lakhapur	Lakhanuria.
13. Nalagarh	Hunduria.	13. Bhati	Bhatial.
14. Sirmaur	Sirmauria. †Chandel.	14. Aknur	Aknuria.

In former days great importance was attached to the title of Mian which was only applied to the Rajas and their descendants in the ruling line, now however it is used by all members of the clans.

When addressed by an inferior a Mian is greeted with the salutation "Jaidiya" from the Sanskrit "Jayata Devah"—May the king be victorious. This compliment is offered to none but Mians hence it has become the custom in the hill to term them "Jaikaris." To an equal the same salutation is returned but to an inferior only "Ram Ram." The inferior even among Mians must be the first to offer the salutation which is then almost invariably returned.

In days gone by all Mians, to uphold their caste and honour, scrupulously obeyed the following four maxims :—

* Now commonly known as Bilaspur.

† Chandel is the clan name of a collateral branch of the Kahlur family and ranks as Mian.

1. Never to handle the plough.
2. Never to marry his daughter to an inferior.
3. Never to accept money on the marriage of a daughter.
4. To exclude the females of his household.

At the present day the only one of these maxims that is strictly obeyed is the last. This renunciation of caste is not through inclination or loss of pride, but necessity. Very many Mians have of late years been compelled to follow the plough, being too poor to employ labour, also finding it extremely difficult to marry their daughters to superiors or equals have in many instances given them to inferiors, and taken money in exchange for them.

In fact all the old Rajput caste laws which formerly were so rigorously enforced and proudly obeyed are rapidly being put aside. Under the levelling tendency of our administration it is only a question of years before the Mian and Rajput will be distinguished by his name only from the Rathi. A bitter blow to their pride was struck when Government decided to annex their States in 1846. Their resentment became so acute that it culminated in what is known as the hill rebellion of 1848, when many of the Rajas of the Kangra District rose against us. This rising was but a trivial affair and easily suppressed.

Each of the 29 Mian clans and also those of Rajputs comprise numerous subdivisions, each of which has its distinctive 'al' or family name. Among the Pathanias for instance there are 22, among the Golerias 13, etc., etc. These 'als' originated in members of the ruling houses leaving the court to settle in some village or estate, and while retaining the generic name of their race are further distinguished by particular names which were derived from the village or estate, or even such trivial things as trees, gardens, etc., for instance, two of the Chambial 'als' are 'Chenaria' and 'Baghawala.' It is not proposed to give a list of these 'als,' but their investigation is interesting in that it clears up the origin of certain castes which otherwise could not be ascertained. For instance in the Dogra Hand Book, 1910, 'Janglotia' is ranked under the heading of Rajput whereas it is an 'al' of the Lakhanpurias, who are Mians. Again 'Chand' is shown as Rajput, but is really an 'al' of the Goleria clan: to mention other cases 'Saroch' is classed as Salaam whereas it is also an 'al' of Goler. 'Salialach', an 'al' of the Pathanias is ranked as a lower class Rathi. A Dogra very seldom mentions the name of his 'al' when being questioned as to his caste, usually it is only the better educated among them who are aware of it.

Ranas.—The title Rana = Rajanaka or almost a king. This was borne by the petty rulers of the hills in ancient times, who were all of Kshatri caste, and is now used as a caste name for their descendants, though previously it designated only the head of the clan, in the same way as the title of Raja does at the present day.

In later times it was the habit of some Rajas to confer the title of Rana on Rajput subjects whom they wished to honour and reward,

but the true Rana in almost all cases ruled his own little State long before the Rajas came into the hills with their Rajputs.

The period of this reign is of very ancient origin and has not yet been accurately ascertained. So far as birth is concerned they were held in very high regard and a Raja of Trigartha actually gave his daughter in marriage to the Rana of Kiragram (Beijnath). This anyhow would prove that the Rana was considered of higher caste than the Rajput, for a Mian Raja would never give his daughter in marriage to a Rajput, his inferior. In some cases a Mian will return the salutation Jaidiya to a Rana.

The Ranas on the whole appear to have been a very turbulent lot, and in the course of time the Raja to whom he had become feudatory was compelled to either forcibly subdue him or drive him out entirely.

In Kangra they lost their independence at an early date, but in Badrawah, Kulu, etc., not until the 16th or 17th century.

The following is a list of Rana castes: there are probably more, but it is very difficult to obtain authentic information concerning this class. Each clan has its own history but space does not admit of its inclusion here:—

Udrial	Kanhiarach	Laddu.
Habrol	Pathiarach	Dodh.
Gumré	Bagauria	{ Samria. Samkria.

Rajputs.—For practical purposes the Rajput is considered nowadays to be the equal of the Rana in rank. Some of the clans trace their origin to ruling Mians, such as Bhabauria, Indauria from the Katoches, Bhurie from Goler, etc., but for the most part they came in small immigrations from the plains and were permitted to settle under the protection of the Raja whose subjects they became. A list of the clans is given:—

Bandala	Chauhan	Jarial.
Bhabauria	Chibh	Manhas.
Bhurié	Ghoréwaha	Muthlial.
Bhao	Harchand	Salehria.
Chandleh	Indauria	Sinh. Siuntié. Sonkla.

Thakars and Rathis.—Of these classes there are no traditions of their emigration from the plains, but their great numbers and wide distribution seem to indicate that for a very long period they have been settled in the hills.

In origin they are generally regarded as being the result of amalgamation of the castes above and below them, but it seems scarcely possible that such a large community can have entirely come into existence in this way. For in Chamba for instance there are 4,000 Rajputs and 40,000 Rathis.

Sir J. B. Lyall offers the most probable explanation. "There is an idea current in the hills that the land-holding castes such as

Thakurs, Rathis, etc., are either indigenous to the hills or indigenous by the half blood, and that the Brahmans, Rajputs, etc., are the descendants of invaders and settlers from the plains."

There is no doubt that as a hill tribe they are older than the Rajputs and it may be safely concluded that the oldest strata among them are descended either directly or by the half blood from the earliest Aryan colonist in the hills.

The first Aryan immigrants inter-married freely with the aborigines, resulting in a fusion of the two races. But the fusion was not at all times uniform and later waves of immigration may have remained more or less isolated, forming the nucleus of the Aryan community which now comprises the Thakurs and Rathis. They have certainly received large accessions from other castes by defections from the Brahmans and Rajputs and by the amalgamation of these two classes with the Sudras.

The ancient rulers of the hills among the Rathis were styled Thakars. These rulers probably came to the front from among the Rathis by force of character. In time the term Thakar came to be regarded as a caste which is slightly higher than the Rathi. These rulers preceded even the Ranas.

In the Dugar group there are many Thakars and few Rathis, so we must conclude that in later years the former caste was largely reinforced by accessions from the Rajputs either by marriage or other connections, while many Rathis have taken a step up in the social scale and term themselves Thakars.

The Thakar caste is not nearly so extensive in the Jullundur group. Each Rathi family coming to the front has kept its original clan name. The distinction between the upper and lower class Rathi is practically the same in this circle as in the Dugar, i.e., a Rajput will marry the daughter of the Rathi who does not practice "karewa" or widow marriage but not of the Rathi who does. Thus we get two classes of Rathis. The Rathis of Kangra will invariably style themselves Rajputs; they object to the term Rathi which they seem to think conveys the meaning of servitor. This objection does not exist in Chamba where no Thakar or Rathi will style himself Rajput.

The list of the various castes of the two classes of Rathis, numbering over 300, is too long for insertion.

Jats.—The Jats of the Dogra district are probably descended from Indo-Scythian stock who entered the Punjab from Central Asia a short time before the beginning of the Christian era. Those who inhabited the plains became for the most part converts to Sikhism, but their caste brothers living in the hills did not come under Sikh influence except during the periodical occupations of their country by the Sikh armies.

The geographical distribution of the Jats of the Dogra district is rather patchy. In the low hills of the Jammu State they are found fairly evenly distributed, predominating perhaps round Bhimber and Aknur. In the Kangra Valley they are mostly

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In general physiognomy the Dogras are a decidedly good looking race. Their complexions are usually fair owing to the temperate climate in which they live, and among the higher classes owing to their purity of descent and abstinence from agriculture. Caste gradations are strongly marked in their aspect, the higher the caste the purer the features.

For physical strength the Dogra is not the equal of the Sikh or Jat. In their own country and more especially in Kangra, the Mians and Rajputs are often inclined to be delicate. This is due partly to poverty arising from their aversion to agriculture, and partly in consequence of the malaria which rises from the rice-fields after the rains, by which the whole population of the valleys and lower hills is annually prostrated with fever.

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but the true Rana in almost all cases ruled his own little State long before the Rajas came into the hills with their Rajputs.

The period of this reign is of very ancient origin and has not yet been accurately ascertained. So far as birth is concerned they were held in very high regard and a Raja of Trigartta actually gave his daughter in marriage to the Rana of Kiragram (Bejinath). This anyhow would prove that the Rana was considered of higher caste than the Rajput, for a Mian Raja would never give his daughter in marriage to a Rajput, his inferior. In some cases a Mian will return the salutation Jaidiya to a Rana.

The Ranas on the whole appear to have been a very turbulent lot, and in the course of time the Raja to whom he had become feudatory was compelled to either forcibly subdue him or drive him out entirely.

In Kangra they lost their independence at an early date, but in Budrawah, Kulu, etc., not until the 16th or 17th century.

The following is a list of Rana castes: there are probably more, but it is very difficult to obtain authentic information concerning this class. Each clan has its own history but space does not admit of its inclusion here:—

Udrial	Kanhiarach	Laddu.
Habrol	Pathiarach	Dodh.
Gumré	Bagauria	{ Samria. Samkria.

Rajputs.—For practical purposes the Rajput is considered nowadays to be the equal of the Rana in rank. Some of the clans trace their origin to ruling Mians, such as Bhabauria, Indauria from the Katoches, Bhurie from Goler, etc., but for the most part they came in small immigrations from the plains and were permitted to settle under the protection of the Raja whose subjects they became. A list of the clans is given:—

Bandala	Chauhan	Jarial.
Bhabauria	Chibh	Manhas.
Bhurié	Ghoréwaha	Muthlial.
Bhao	Harchand	Salehria.
Chandleh	Indauria	Sinh. Siuntié. Sonkla.

Thakars and Rathis.—Of these classes there are no traditions of their emigration from the plains, but their great numbers and wide distribution seem to indicate that for a very long period they have been settled in the hills.

In origin they are generally regarded as being the result of amalgamation of the castes above and below them, but it seems scarcely possible that such a large community can have entirely come into existence in this way. For in Chamba for instance there are 4,000 Rajputs and 40,000 Rathis.

Sir J. B. Lyall offers the most probable explanation. "There is an idea current in the hills that the land-holding castes such as

Thakurs, Rathis, etc., are either indigenous to the hills or indigenous by the half blood, and that the Brahmans, Rajputs, etc., are the descendants of invaders and settlers from the plains."

There is no doubt that as a hill tribe they are older than the Rajputs and it may be safely concluded that the oldest strata among them are descended either directly or by the half blood from the earliest Aryan colonist in the hills.

The first Aryan immigrants inter-married freely with the aborigines, resulting in a fusion of the two races. But the fusion was not at all times uniform and later waves of immigration may have remained more or less isolated, forming the nucleus of the Aryan community which now comprises the Thakurs and Rathis. They have certainly received large accessions from other castes by defections from the Brahmans and Rajputs and by the amalgamation of these two classes with the Sudras.

The ancient rulers of the hills among the Rathis were styled Thakars. These rulers probably came to the front from among the Rathis by force of character. In time the term Thakar came to be regarded as a caste which is slightly higher than the Rathi. These rulers preceded even the Ranas.

In the Dugar group there are many Thakars and few Rathis, so we must conclude that in later years the former caste was largely reinforced by accessions from the Rajputs either by marriage or other connections, while many Rathis have taken a step up in the social scale and term themselves Thakars.

The Thakar caste is not nearly so extensive in the Jullundur group. Each Rathi family coming to the front has kept its original clan name. The distinction between the upper and lower class Rathi is practically the same in this circle as in the Dugar, i.e., a Rajput will marry the daughter of the Rathi who does not practice "karewa" or widow marriage but not of the Rathi who does. Thus we get two classes of Rathis. The Rathis of Kangra will invariably style themselves Rajputs; they object to the term Rathi which they seem to think conveys the meaning of servitor. This objection does not exist in Chamba where no Thakar or Rathi will style himself Rajput.

The list of the various castes of the two classes of Rathis, numbering over 300, is too long for insertion.

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In addition to the three Dogra regiments Dogras are enlisted in nearly every class company regiment in the Punjab and in many cavalry regiments.

THE TURKISH EXPEDITION INTO THE HAURAN.

BY CAPTAIN C. C. R. MURPHY, 30TH PUNJABIS.

Of the Turkish Expedition into the Hauran in September, 1910, and the extraordinary Arab rising which took place in Kerak in the early days of the following December, no military account has yet been published. Only the most meagre details have found their way into the world's newspapers; and they, moreover, have been frequently incorrect. The following sketch, though necessarily original, and compiled entirely from conversations, may therefore contain something of interest, dealing as it does with the latest and most important expedition which has been sent against those curious people called the Druses. Every effort has been made to verify the statements set forth below. But it must be borne in mind that the Englishman is in no way a *persona grata* in the Ottoman Empire in these days; and though the writer was in Damascus throughout the whole of the operations in the Hauran and even visited the Turkish base at Deraa, really amazing difficulty has been encountered in the preparation of this simple account. My information, such as it is, has been collected from various sources, including the Commander-in-Chief of the expedition, the Field-Marshal commanding the Fifth Army Corps, the Bishop of Hauran, the Consuls of the various European powers in Damascus, and a host of others with whom I have had opportunities of discussing the affair, even down to the Turkish private soldier who took part in the actual fighting. No one can arrogate to himself the power to sift information accurately; still, unless the writer has been very unfortunate in his deductions, and in his discriminations between what is correct, what is only partially correct, and what is wholly false, the following pages should give a continuous and co-ordinate approximation to the principal events of the first military expedition into Turkey in Asia since the Constitution.

The concentration of troops for the Hauran Expedition began early in August, 1910, and occupied several weeks. The point selected for this purpose was the important railway junction of Deraa, where the Haifa branch joins the main Hedjaz line which runs between Damascus and Medina, a distance of 1,303 kilometres. Some of the troops were railed from Aleppo to Damascus, whilst others were sent to Haifa by sea; and at these two termini they were entrained for Deraa. About September 20th a battalion was detached to Bosra Eski Sham, but the work of mobilisation had proved so laborious that a general advance could not be made until the end of that month. Sami Pasha, who had been sent from Constantinople to take command of the expedition, arrived in Damascus during the third week in August and in the course of an

interview which he accorded me there on August 26th, he informed me that he intended to commence operations, if possible, within a month from that date.

The entire force under Sami Pasha in Deraa probably did not exceed 21,000 men, consisting of infantry (mainly *redif*) from the 5th and 1st Army Corps, a few batteries of Q.-F. guns of small calibre and some mountain guns, and a portion of a regiment of cavalry from the 5th A. C. in Damascus.* Most of the infantry battalions possessed machine guns, and a percentage of the men were issued with hand grenades. Communications were to be kept up by means of field telegraph and telephones. The Turkish force was organised into two divisions and an independent brigade; and on the 19th of September the dispositions were as follows:—Sami Pasha and the Headquarter Staff, with the 1st Division under Colonel Abdul Hamid Bey, at Deraa; the 2nd Division, under Colonel Ali Bey, at Kharabat al Ghazaleh; the independent brigade under Colonel Naji Bey, holding a line of villages west of Soueda and Shuhba.

It was almost the end of September by the time Sami Pasha's army had risen up from the yellow plains of Deraa and had penetrated the black-looking villages of the Hauran.† The two divisions, immediately headed for the villages of Al Musifreh and Sikaka whilst the independent brigade engaged itself in trying to straddle as many of the roads as possible leading out of the Hauran, between the Lejah and the Hedjaz railway, into Damascus where the Druses had a large number of friends and supporters. About this time, considerable indignation was aroused in that city on receipt of the news that Yahya Atrash, the most powerful Druse chief, together with five of his companions, all of whom had come in with the Bishop of Hauran on September 21st, as emissaries of peace to confer with Sami Pasha, had been detained as prisoners in the Turkish camp. The Bishop informed me that he did not share in the belief, which had certainly spread amongst the Arabs and others that by this action Sami Pasha had abused the privileges of war. The Syrians regarded this affair as another addition to the scarlet record of Turkish crime, remarking, however, that 'one hole, more or less, in a strainer does not make any difference.' Yahya Atrash seems to have received kind treatment at the hands of Sami Pasha. The following announcement appeared in the *Standard* of the 23rd of September: "Yahya Atrash, the chief of the rebellious Druses, has surrendered unconditionally with two companions to Sami Pasha. Several other chiefs came in yesterday." That, however, was not the Damascus version of the affair.

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upon this in the Damascus *souks** was that negotiations had failed and that the Druses meant to fight. At that time the 1st Division was occupying the villages of Safah and Hadeed, and the Red Hill, all three of which places are to the east of Soueda; whilst the 2nd Division was encamped round the dilapidated barracks in Soueda itself. Here the two divisions were split up into three columns, the first of which moved off northwards by way of Kanawat under the command of Badr Khan Bey; the second, southwards towards Al Kafr; whilst the third remained behind in Soueda, holding itself in readiness to act in any manner which future developments might indicate. As Badr Khan Bey's column was approaching Kanawat the Druses opened a heavy fire on the Turks, but shortly retired to the neighbouring village of Mafala, where they were able to conceal themselves behind the low walls of the vineyards, and amongst the ridges and groves overlooking the road along which the Government troops were advancing. The rebels were again dislodged without much difficulty, but fighting of a desultory description continued for three days. On October 1st Sami Pasha, who had now moved his headquarters from Deraa to Soueda, occupied the villages of Kanawat, Sarkhad, Atil, and 'Ain Sad; but only at the first-named was there any fighting to speak of. At the same time the Druses, on learning that Deraa had been denuded of all its troops except one battalion, attacked that village and succeeded in cutting the lines of communication with Damascus. Sami Pasha, however, contrived to get a message through to the Mushir who despatched a battalion to his aid, and at the same time a small column hurried south from Soueda, with the result that the Druses were driven off and two of Yahya Atrash's relatives were killed. On October 3rd the first convoy of wounded arrived in Damascus. It was reported that during the fighting round Kanawat the rebels were joined by some of the Druses from the North Mekran and the Wadi Lewa. On October 8th the column which was under the command of Showkat Bey joined that of Badr Khan Bey and marched to Mardak, where the 2nd Division had arrived from South Mekran. Sami Pasha, who was also there, then made Mardak his head-quarters. Reports now kept on coming in that the rebels were collecting in Shuhba in large number, and it was confidently expected that there would be a big fight between there and Al Kanawat. On the 9th of October the Mushir told us in Damascus that he was hourly expecting news of an important engagement from that quarter. However, when the cavalry which had been sent there to reconnoitre returned, they reported the village empty; and so after all it was occupied without resistance. Two days later Badr Khan Bey's column advanced along the Shuhba Road to Umm iz Zeitun; and on October 11th this column and that of Naji Bey, which had come down the Liwa Valley Road from Baraq, occupied Matuna without meeting with any opposition.

* Bazaars.

Let us now return to the 2nd Division under the command of Abdul Hamid Bey. On October 1st this force advanced on Al Kafr by way of the villages of Insad ar Raha and Sahwat al Bilat, a *tabur** being dropped at the latter village to collect arms, but they only succeeded in getting hold of fourteen. So far, none of the rebels had been met with; but as the remainder of the column were passing through the groves between there and Al Kafr, the Druses opened a heavy fire on them. The troops advanced, the main body heading straight for Al Kafr; but it took them two hours to clear the Druses out of the vineyards and to effect an entrance into the town. The rebels then withdrew to the surrounding hills and kept up a desultory fire on Al Kafr until sunset. By the next day the force had been divided into two portions, the first of which went to Habran, and the second into the hills to the south of Al Kafr, one of which is now known as "The hill of Amr Bey" because of a certain Turkish officer of that name who was killed there†. That night the Druses attacked Amr Bey Hill, advancing to within "a hundred metres of the Turkish troops"; and at the same time they re-occupied Al Kafr from which the latter had withdrawn. During this night-attack the different portions of the Turkish force repeatedly fired on one another, and yet they had very few casualties. On October 2nd the Druses had to be driven out of Al Kafr for the second time. During the next three days Abdul Hamid Bey was busily engaged in following them up; and on October 6th he entered Soueda. From here he went on to Kanawat and thence to Mardak, where he remained from October 9th to October 22nd enrolling conscripts and collecting arms. The columns of Badr Khan Bey and Naji Bey, which had reached the villages of Umm iz Zeitun and Matuna on October 10th and 11th respectively, received orders to proceed immediately to the Lejah where the rebels were reported to have fortified themselves. According to the leading Damascus newspaper, *Al Muqtasas*, a cordon of troops was now thrown round the Lejah, surrounding it "as a bracelet surrounds the arm;" and detached posts were established in all the villages from Umm iz Zeitun to Baraq in the Liwa Valley. Then Naji Bey with a small force marched through the villages of Ahara, Bosra Hariri, Azra, and Hamar, after which he left the major portion of his troops in the Liwa Valley. Numbers of rebels now commenced giving themselves up, thus facilitating the work of disarmament and the enrolment of conscripts. Amongst those who came in was one Yahya Amar, a rebel chief, who with some of his companions was detained by the Turks. On October 21st Naji Bey sent three *taburs* under Lieutenant-Colonel Said Bey to scour the country between Hamar and Matuna. It was announced in the newspapers at this juncture that Sheikh Sad-ud-din Abu Suleiman with about 200 horsemen came in to offer his obedience to Sami Pasha; but having regard to the entire

* A battalion.

† Yuzbashi (Captain) Amr Bey, No. 2 Company, 4th Battalion, 5th Regiment 1st A. C.

absence of sympathy between the Arab and the Turk, I have no doubt that this report was an official concoction.*

All fighting being now at an end, the expeditionary force was split up into six columns to complete the work of enrolling conscripts and collecting arms. On October 22nd Sami Pasha returned to Soueda from Mardak, and by the end of the month, 350 of the new conscripts were sent from the Sarkhad district to Deraa by way of Bosra eski Sham. A similar number were sent from Soueda to Ahara *vid* Kharabat al Ghazala; whilst about 70 more were collected from the district of Ahara itself. With the rounding up of the conscripts in Bosra eski Sham and neighbourhood, and in the Jebel ed Druse, and a further general wresting of arms, the task of the expedition was brought to a conclusion.

As regards the casualties which occurred during this short expedition, it is very difficult to form an accurate estimate. Sami Pasha himself puts his at 93 killed and wounded, and those of the Druses at between four and five hundred. The Bishop of Hauran, who knows the Druses thoroughly well and whose opinion is certainly entitled to great weight, assesses the Turkish losses at 60 killed, and those of the Druses at less than four hundred. He also assured me that although the fighting strength of the Druses is probably as great as 15,000 men, yet not much more than 2,000 actually took the field. The feeble resistance offered by the Druses came as a great surprise to everyone in Damascus where it was confidently expected that they would show stubborn fight as they did in September, 1896, when they defeated General Abdulla Pasha near Ezra.

From what has preceded, it will be seen that with the exception of the two engagements at Kanawat and Al Kafr, which took place at the very outset of the expedition, there was practically no fighting at all, and that after these two defeats the Druses made no further stand. Most of the casualties occurred in Abdul Hamid's Division. By the close of the expedition the Druses had handed in perhaps 70 per cent of their arms. This, however, can but paralyse them temporarily, for as one of them himself told me, they can get as many rifles as they like by sending caravans for them across the *shatt* to the neighbourhood of Koweit on the Persian Gulf. From this casual remark it seemed to me that the submission of the Druses was not one of love, but rather that they had bowed for the moment to the will of the conqueror. At the time I left Damascus in February last it was the intention of the Turkish Government to leave a miniature army of occupation in the Hauran, to consist of 4,000 men, of whom 3,000 were to be mounted on mules and the remainder on camels. The place selected for the headquarters of the force was Bosra eski Shain. They had also announced their intention of rebuilding the barracks in Soueda, and of repairing the roads in the Hauran which are extremely bad. A line of outposts was to be

* The Sublime Porte, for obvious reasons, always endeavours to conceal the bad feeling which exists between the Arabs and their co-religionists the Turks.

† Desert.

established along the eastern boundary of the province, beyond the Jebel ed Druse, where a chain of Roman forts once existed.

As regards the results of the expedition, it is difficult to say whether or not anything of a permanent nature has been achieved. For the time being, at all events, the Druses have submitted to the Turks. They have promised to pay their share of taxes, and to furnish a due proportion of young men for the Imperial Army ; but a promise is a very fluid thing in the Ottoman Empire. Fourteen hundred recruits, as well as vast quantities of grain, sheep, and cattle have already been taken from them, and as previously stated they have been to a great extent disarmed. Several of the ringleaders have been hanged, and the properties of all those implicated have been either confiscated or destroyed. As a display of force to the disunited peoples of Turkey in Asia it has certainly had the effect of raising the prestige of the *Doli** the name by which the Damascene usually refers to the Government of the *Bab al Ali*. The Hauran Expedition was the first occasion on which non-Moslem, *nizam* troops have been employed by the Turks. That these only consisted of a mere handful of Christians is true ; but the extensive enrolment of Druses at the close of the operations marked a very important development in this direction. Sami Pasha had no Syrians under him.

If the rebellion in the Hauran has only been quelled temporarily, nevertheless to Sami Pasha belongs the honour of having driven it under the surface even for a time. The general opinion in Damascus was that he had conducted the expedition with both firmness and fairness. Undoubtedly his fluent knowledge of Arabic—a rare qualification amongst Turkish officials—proved of great value in dealing with the situation. It is instructive to notice that out of the conduct of operations in the Hauran there arose a quarrel between the Wali of Damascus and the Commander-in-Chief of the field force ; that is to say, between the civil and military authorities—a situation not without precedent in older civilisations. The quarrel ended in the dismissal of the Wali. Nor was Sami Pasha unmindful of the popular aspect of the expedition. He endeavoured to make it as far as possible a demonstration of force so that it might be an object-lesson to the whole Ottoman Empire. He took care that the arms captured from the Druses should be paraded through the streets of Damascus, and accordingly strings of camels laden with rifles were occasionally to be seen being led through the narrow bazaars with almost comical ostentation. He issued proclamations of the most approved style, and he arranged that the return of the first batches of troops from the Hauran should synchronise with the departure of the Haj from Damascus—a very important function.†

During the fourteen years that had elapsed since the disastrous campaign of Abdulla Pasha, a vast change had come over the Turkish Army. Under Sultan Abdul Hamid the imperial troops outside

* A corruption of *دولي*

† Last year the *mahmal* did not leave Damascus until November 7th

Constantinople were a half-starved, half-naked rabble; but since the *Dastur*, as the new constitutional government is called, the state of the army has improved beyond recognition. I had opportunities of seeing large numbers of Turkish troops, both Regular and Reserve, on their way to, and returning from, the Hauran; and they appeared to be thick-set, sturdy men, well clothed and well armed, but poorly shod. The *Redif* (Reserve) troops of which the major portion of the expeditionary force was composed seem to be in every way superior to the *Nizam* (Regular) troops who apparently never get beyond the stage of partly-trained recruits. Their drill, which is on German lines, is extremely slovenly, and the general turn-out of the men on parade is very bad. As regards musketry they are practically unexercised. The Field Force adopted the head-dress of the Arabs, namely, the *kafiyeh* and the *aghul*, and the men carried bandoliers. Most of the rifles that I saw were in fairly good condition, though some of them showed signs of having been cleaned with hard substances, such as emery, both inside and out. Turkish rifles never become shot out, nor do they often become cleaned out like so many of our rifles do. The men were well clad in khaki serge with putties. In the field they were well fed, meat being issued to them three times a week, with a plentiful supply of vegetables, and wheaten bread daily. The expedition was equipped with heliographs, but their signalling results were very poor, and the field telephones which had been served out to them proved absolutely useless as they were unable to work them. Pack animals, such as camels, mules, ponies, and donkeys, were used for transport, and for the first time in the military history of the Turkish nation, *sukhra** was unknown. The transport arrangements were, however, of a makeshift description, the work being merely muddled through, and it is probable that the Turkish Transport Officer, "seeking that bubble reputation even at the camel's mouth," would win more of that evanescent substance under the banner of the Star and Crescent than under any other. But it was perhaps in matters appertaining to sanitation in general, and to water-supply in particular, that the Turks showed the greatest progress. In the campaign of 1896, literally hundreds of their men died of dysentery, and no attempt whatever was made to cope with the disease. During the recent expedition, on the other hand, the health of the troops was excellent throughout. As regards the Turkish officers, their fighting value is inferior to that of their men, and they do not possess the same resignation in times of hardship which is the chief characteristic of the latter. They are well dressed, but otherwise their appearance is unworkmanlike and disappointing. On the whole, the writer's opinion is that, notwithstanding their immense improvement since the Constitution, it will be some time yet before the Turkish Army can be considered a real weight in the balance of the world's peace.

* *Sukhra* is forced labour without payment.

THE CONCENTRATION OF TROOPS BY RAIL.

BY CAPTAIN C. WATSON, R.E.

To the minds of some people, anything connected with railway organisation, such as a scheme for the movement of large bodies of troops, presents an inscrutable mystery. To others, possessed perhaps of that dangerous modicum of knowledge, all such problems appear absurdly simple; for example, the Cantonment Station Master states that he can pass 15 trains a day through his yard, and from such slender information it is assumed and reported that the local brigade can be entrained and despatched to any place in India between dawn and sunset. Now, although the transportation of the larger formations is by no means a difficult thing, there are many inconspicuous factors to consider, any of which, if neglected, will form a serious obstacle to the carrying out of a pre-arranged plan. The object of this article, therefore, is to collect all these factors and explain their limiting effect. Since the Boer War we have been told in season and out of season that a railway is a delicate machine something like a clock and must be treated accordingly; fortunately this is an exaggeration, for no clockwork mechanism would have stood the rough handling to which the railways in South Africa were subjected, without complete collapse. It would be nearer the mark to lay stress on the magnitude of possible disturbing factors than on the delicacy of the mechanism, and it is hoped that an exposition of what these factors are and how they are arrived at will show what a railway may reasonably be expected to undertake and what is clearly beyond its powers.

Let us therefore consider a simple problem such as the concentration of a force of all arms with its transport and supplies on a base at the end of a single line of rail. It is required to draw up a scheme for its entraining, despatch, feeding and delivery at the base. Incidentally, provision must be made for other services such as facilities for civil traffic, railway services, postal arrangements and dispositions for internal defence.

The first thing to investigate is the greatest limiting factor in the facilities available. This will be—

- (a) the capacity of the railway line in trains per day;
- (b) the number of engines and rolling stock available;
- (c) terminal accommodation, or the capacity of the base station to deal with trains; or
- (d) the capacity of the communications beyond the base limiting the rate at which troops can advance.

Capacity of line.—First as regards the capacity of the railway line, it is necessary to settle the minimum requirements for services which must go on concurrently with concentration. These are

military supplies, civil traffic and postal and railway services. Internal defence moves mentioned above can be provided for as far as they can be foreseen as a part of ordinary concentration traffic. Those that cannot be foreseen, as well as traffic on account of railway service and the bulk of civil supplies, will usually be dealt with specially as shown hereafter. We have therefore to provide a daily service in addition to our troop and transport train for military supplies, the minimum of civil traffic and postal services. The rest of the trains will be available for troops and transport.

To come to details let us assume a base at the end of a single line whose stations are not more than 10 miles apart and over which trains of 45 vehicles each can be run at a speed between stations of 20 miles an hour. The running time between stations will be $\frac{1}{6}$ th of an hour or 30 minutes. We can therefore theoretically run a train towards the base every alternate 30 minutes, the intermediate periods being occupied with returning trains; this would give 24 trains a day to the base. We have however to make an allowance for unforeseen delays; and as every train running late will react on each train it crosses and on those that are following it, these delays are apt to become accumulative. Taking all this into consideration and assuming that not more than one up and one down train run at a faster speed than the others, which is also a fertile source of delay to the slower trains, we cannot count on a greater efficiency than 66 per cent which would give us in the case we are considering 16 trains each way instead of 24. Out of these 16 we must first make our allotments for civil traffic, postal services and military supplies. The first two, we will assume, can be met by one fast mail train, and one mixed train at 18 miles an hour; these trains would also be available for incidental military traffic. As regards supplies the question depends on how much has been accumulated beforehand at the base. Assuming that this amounts to a quantity sufficient to act as a reserve balance during operations, it will only be necessary to carry during concentration the amount actually required to replace issues. Two trains a day of 400 tons each would be ample in most cases.

Our 16 trains a day are therefore allotted as follows:—

1 Mail.

1 Mixed.

2 Supply.

12 Troop or Transport.

Water-supply.—The capacity of the line is also governed by the sufficiency of the water-supply for the number of trains contemplated. Advice on this point must be sought from the Locomotive Department of the railway. The distance apart of watering stations varies with the grade and with the tank capacity of the engines in use and the amount of water required at each varies with the grade and their distance apart. The question is rather too technical to be disposed of without expert advice which, after all, is always available.

Engines and rolling stock.—The number of engines required may be calculated by allowing one engine per 70 train miles per diem + 15 per cent extra for washing out and for light repairs. If the movement is a very short one of ten days or a fortnight 80 miles a day may be calculated on. If double engines are required on heavy grades this must be allowed for and shunting engines must not be forgotten. The result will be the total number of engines required in running order. Besides these, about 15 per cent of the total number of engines on the line will be under heavy repairs in shops. The calculation should be based, as a general rule, on the greatest number of trains to be run on each section of the line. It would be seldom practicable to transfer engines from one section to another during concentration, hence each section should be fully equipped from the start unless careful consideration shows that such transfers are practicable.

The quantity of rolling stock required must as a rule be computed from inspection of the scheme and no rule of thumb can be laid down. Stock, and engines too in a less degree, can usually be borrowed from other lines so that their limiting power is not insurmountable. Political considerations may, of course, forbid the denuding of adjacent lines.

Terminal accommodation.—The next factor to be considered is that of terminal accommodation. Conclusions must be largely based on the experience of the most competent railway officials available, preferably on previous experience of the station in question under concentration traffic. The question should also be attacked theoretically on the following data:—

- (a) Every loaded troop or transport train must be brought alongside a suitable platform, but may leave when empty from any siding of sufficient length from which there is a fair lead on to the main line.
- (b) Passenger trains should be both received on, and despatched from, a line to which the public can have free access from beyond station limits without having to cross other lines. The ordinary passenger platform should be used if possible.
- (c) Supply trains must be received in sidings convenient to the supply dépôt and will require room for breaking up, distributing to the various dépôt lines and remarshalling when empty.
- (d) At least one line through the station yard must be kept clear for the movement of engines and brake-vans.
- (e) Standing room must be provided for a certain balance of empty trains.
- (f) A sick line for repairing damaged stock is required.

The best illustration of these principles is to apply them to a yard. The plan Fig. 1 shows an imaginary yard more or less suitable for a base. We see at once that all the sidings except the two goods platform lines are at least 1,400 feet long which, allowing

25 feet per vehicle and 75 feet per engine, is amply long enough for a train load of 45 vehicles.

Taking now our data in order we see (*a*) that we have two troop or transport platforms which can be used independently. Most trains can be unloaded in an hour, but allowance must be made for clearing empty trains and above all for clearing the platform of baggage. The utmost we can allow therefore is one train per platform per two hours or 24 trains a day as against 12 we have to provide for. We can also arrange for their arrival as far as possible during daylight, that is to say, we can arrange for the supply trains and the mixed train to come in at the worst time of the night for detraining, say, between 1 A.M. and 5 A.M. As we have a 33 per cent margin of safety in the number of trains that can actually be run, we can further arrange to ease off the traffic between these bad hours without making it too dense during the rest of the day. (*b*) The mail and mixed trains can be received on the passenger platform, the wagons of the mixed train being dealt with at the goods shed. One of these two rakes can be stabled on No. 3 goods shed line and the other, if present at the same time, must remain on No. 1 line main yard. If possible the time-table should be arranged so that only one rake is in the station at once, or if this is not possible, that the second to arrive should leave first so that it can remain on the passenger platform line (No. 1) all the time. No. 2 goods shed line is left spare as it is the only one with an end loading dock and would be wanted for unloading heavy artillery, loaded G.S. wagons or pontoon wagons, at other times it would be required for shunting operations in the goods yard or as a shunting neck for the main yard. (*c*) Supply trains would be run straight through the main yard on to the outer line 'A' serving the supply sidings where they would be dealt with by a separate shunting engine immediately on arrival. This would be, as we have arranged above, in the early morning and wagons should be ready to be unloaded by dawn. After nightfall or earlier, the empty wagons would be collected and marshalled in the spare stock line ready for the return journey. As there is only stabling room for one train without encroaching on the main line, it is essential that wagons be unloaded within 12 hours of arrival. The rapid unloading and clearing of stock is one of the fundamental rules for successful traffic working.

We have now to consider the question of through and spare lines. A little consideration of the plan will show that those marked by thick lines are the minimum requirement. Line No. 6 is reserved for damaged stock.

This brings us to (*e*) standing room for empty troop and transport trains, and we see we have lines 2, 3 and 4 of the main yard. This would allow a maximum of $6\frac{1}{2}$ hours between the arrival of a train and its departure back, thus—A train arrives at 6 A.M.; by 8 A.M. at the earliest it is placed on No. 2 line ready to return, the trains on Nos. 3 and 4 leave at intervals of about $1\frac{1}{2}$ hours (there

being 16 trains leaving in the 24 hours), i.e., at 9-30 and 11 the train on No. 2 must therefore leave by 12-30 hours or 6½ hours after arrival, which gives some margin for delay in unloading.

We therefore see that the yard in question is just large enough for our purpose provided trains are promptly emptied, platforms promptly cleared and stock methodically dealt with. Delay and lack of method will wreck any concentration scheme and have done so in the past.

Capacity of road communication.—As regards the remaining factor, it is controlled by military conditions, but if it is found that the train service as calculated above is in excess of military requirements, it would usually be advisable to increase the service of civil trains. This would be of advantage politically as lessening economic disturbances in the territory under concentration traffic and would also lessen the chance of excessive accumulations of supplies and material choking the platforms and stacking grounds of the base station.

These limiting factors have been dealt with at some length as it is of the greatest importance to examine them carefully at the outset.

Time-table.—Having now settled on the number of trains to be run the next thing to do is to make out a time-table. The route must first be selected. If there is more than one base, separate and independent routes to each are a necessity, or if the same route must be used for parts of the journey, separate and independent timings must be allotted to each base. This is essential so as to ensure that any delay in concentrating on one base will not affect the others; in other words, the movements to different bases must not be interlocked. In preparing the timings the mail trains must be put in first connecting with suitable trains outside the concentration area. The trains to the base should then be put in working from the base backwards, the arrival times being regulated on the lines indicated above (*viz.* terminal accommodation); lastly, the timings for returning trains should be arranged for. All troop and transport trains should have a long halt of about 3 hours in every 24 hours for food and rest, and these halts should be arranged at stations where there is sufficient accommodation, so that trains may be halted opposite an open piece of ground and with access to good water. A short halt of 30 to 40 minutes is required morning and evening for watering animals and providing light refreshments for troops, but if the long halt comes early or late the corresponding short halt may be dispensed with. Trains should as far as possible use the same halting stations, especially for the long halt so as to avoid unnecessary duplication of supply arrangements. Halts for other purposes should be allowed as under—

Shunting on supply trains at large stations	...	30 minutes minimum.
Changing engines	...	20 to 30 minutes.
Watering one engine	...	7 to 10 minutes.
Watering two engines	...	12 to 15 minutes.
Crossing two trains	...	5 minutes minimum.
Halt at roadside station	...	3 minutes minimum.

All trains except the mail should be allowed time in the time-table to halt at all crossing stations though this does not necessitate them actually stopping if there is no reason to do so.

Every timing on the main line should have a connecting timing on each branch line from which military traffic may be expected ; although not more than two or three timings may ever be required on any one day it is a convenience to have the full number to choose from.

Each timing should be distinguished by a letter and branch timings should bear the same letter as the main line timings with which they connect ; for this purpose letters are, as a rule preferable to numbers for military trains in order to distinguish them clearly from civil trains ; moreover the convention of odd and even numbers is usually used to distinguish up from down trains, so if, as is often the case, concentration traffic moving to the base is sometimes moving in the conventional "up" and sometimes in the "down" direction, the use of the same number throughout would confuse the railway staff. No such convention attaches to the use of letters, hence the advantage can be retained of using the same distinguishing symbol for a main line timing and its connections throughout without the danger of confusion.

Blocks.—Having got so far we are in a position to work out an actual scheme of concentration. First of all the units composing the force must be arranged in groups of convenient size, each group or "block" being of such a size as can concentrate in about 8 days or less. Thus a complete infantry division makes a convenient block. Technical troops which are usually required first can be arranged as an easy and short block to start with.

These blocks will normally run in a certain order which should not be changed except for very urgent reasons ; this greatly facilitates arrangements for returning empty stock for the following block. The advantages of this system of blocks is that any breakdown in concentration only affects the block in which it occurs, and subsequent blocks can be held back until communication is restored ; moreover in an emergency, the order of blocks can be altered without so much disorganisation as if it were necessary to alter the sequence of trains in a system of continuous concentration. For convenience of reference troop blocks may be numbered and transport blocks lettered, and each train in a block should be consecutively numbered in the order of its arrival at the base. Any train can thus be at once identified by quoting its consecutive number and the number or letter of the block. If there are more bases than one, a distinctive initial can be given to the base also, e.g., 22 J. A. would mean the 22nd train moving to "Jutogh" in transport block A. The order in which blocks are to run is a purely military consideration, but as a rule it would be found necessary to commence with a block of technical units and such troops as are urgently required, and to follow up with some transport before concentrating the blocks containing the main body of troops. In any case the first

block should be a short one and should commence slowly, working up on the 4th day or so the full time-table.

Succeeding blocks should as far as possible work to the full time-table, and trains left over less than the number necessary to complete a full day being run so as to arrive in the latter part of the first day of arrival. There will thus usually be a few spare timings at the commencement of each block which will allow of a certain amount of tailing out of the block in front, and will also permit of extra civil supplies, coal for the railway or any unforeseen special trains being run.

Arrangement of trains in a block.—In arranging the order in which trains are to arrive, regard should be paid to facility in detrainment, thus trains containing large numbers of army transport carts should be arranged to arrive at comparatively long intervals so as to give time for platforms to be cleared. Generally speaking, however, trains that come the furthest will arrive last, and the others in the order of their distance from the base. It may thus happen that no trains at all will arrive on the first day of the block or even for two or three days if there are any trains which take more days on their journey than there are days required for receiving all the trains at the base. Thus if the time-table allows for 12 trains a day into the base and there are 51 trains in the block, 3 of which came from a place distant six days' journey, we will have 12 trains arriving the 6th day (including these three), 12 on each of the 5th, 4th and 3rd days and 3 in the latter part of the 2nd day. No trains will arrive at all on the 1st day. It is therefore clear that we may start this block the day before the previous block ends, and this would ordinarily be done if no serious hitch occurred in the previous block, there being still a good deal of margin allowed by the easy traffic on the 2nd day.

Entrainment facilities.—In arranging trains in a block perhaps one of the most important points to be kept in view is the capacity of entraining stations. This must be carefully estimated from the number of suitable platforms available. It is well worth taking pains to allot to each station its most convenient timings avoiding night work as much as possible. Where equally convenient timings cannot be allotted to all units, the best should be selected for the units most difficult to entrain and the worst for trains of transport carts or trains largely consisting of equipment and stores which can be loaded at leisure some time previously.

Economy of stock.—Even when stock is plentiful an attempt should be made to so allot timings that each rake is used as often as possible without breaking it up and redistributing it. If stock is limited this point must have very careful consideration which will be amply repaid by the economy effected.

Printing of Time-tables.—Having made out our scheme, it now remains to present it in a clear form capable of being understood by persons of ordinary intelligence. The time-table presents no difficulty, that for railway use being designed on the lines of an

ordinary working time-table with the military halts clearly indicated. For military use an abstract time-table is all that is required showing all entraining and halt stations (Fig. 2). It should be accompanied by a map showing the lines of advance in distinctive colours.

Plans of movement.—Concerning the actual movement of units, information must be given to various parties. First to the units themselves as to when and where they entrain, halt and detrain; this can be done by means of a plan of movement (Fig. 3) showing under each block the units entraining, the place and time and day of departure, the timing to which each train runs and the place and time of arrival. Halts and other intermediate timings can then be ascertained from the abstract time-table.

Concentration Tables.—Next, information must be given to the railway administration of the stock required daily at each station, and to the subordinate officers of the railway of the actual composition of each train leaving each station daily with the time of its departure. The latter information must be got out first and can easily be presented in tabular form (Fig. 4). The first column should give the day of the block, *i.e.*, the day on which the trains of the block commence running. This being the datum level from which all time calculations are made is an important figure. In the next column the station name should be written and in the next the description of the unit to be entrained. There should next be a column for "Train of Unit," the trains conveying a unit, when there are more than one, being distinguished by letters. After this should follow columns for the different vehicles composing each train with a column for the total. The next three columns should give the letter denoting the timing in the time-table, the time of departure, and the "military train number," which is the serial number given to each train in a block in the order of its arrival. As this number is the identifying mark of each train it is put in a conspicuous position. Lastly, there is the inevitable column for remarks. In order to give the required information to the head of the railway traffic department as to the stock to be provided daily at each station, it is only necessary to summarise the above-mentioned statement (Fig. 5) giving under each station the total daily requirements.

Graphic diagrams.—Information is still required in a convenient form as to the trains to be expected daily at each engine changing and halt station and also of the general distribution of trains throughout the system. A graphic diagram shows this best (Fig. 6). Stations are represented by parallel vertical columns and the trains running between them by horizontal lines plain or dotted to distinguish different kinds of trains; above each line is written in the middle the timing of the train it represents and adjacent to the station columns the arrival and departure times. Halts are designated by conventional signs, and the successive days of the block are marked off by horizontal lines drawn across the station columns. By printing the diagram in colours a greater variety of conventional

signs becomes available, but this adds greatly to the time of printing and is therefore a disadvantage if schemes have to be got out in a hurry.

Supplies.—Two supply train timings are allotted in the time-table and these are available daily for replenishing the supply depots and balancing the daily issues. In order to control traffic it is necessary for a supply officer to be at the head-quarters of the railway administration who is cognisant both of the requirements at the base and of the supplies ready at stations for movement to the base. Under his advice the railway administration will allot wagons to the different stations having supplies ready. Stations should be chosen in convenient groups so that trains may be made up to full load at the beginning of their journey. As in the case of troop trains it is also necessary to consider the terminal facilities and avoid running up large quantities of bulky or awkward stuff such as unbaled bhoosa or firewood on the same day, this would result in delay in unloading wagons and consequent blocking of the base station.

Making out a block.—The forms shown in Figs. 3 to 6 have been filled in with details of an imaginary transport block concentrating on a mythical base which may be called Jutogh. The limiting factors of the line are taken to be the same as those assumed at the beginning of this paper. The units comprising the block are shown in the second column of Fig. 3.

The first thing to do is to draw out the graphic diagram Fig. 6 roughly in skeleton. As the block consists of 30 trains its arrival at the base must occupy 3 days, 12 trains a day being the number allotted for troop and transport trains. If this block J. A. were the first block it would be advisable, as pointed out above, to spread it over 4 days, arranging for, say, 4 trains to arrive the 1st day, 6 on the 2nd day, 8 on the 3rd day and 12 on the 4th day. However J. 1 containing technical troops would probably be the first block and J. A. would follow it, hence 12 trains should be arranged to arrive on each of the last two days of the block and six on the latter portion of the previous day. These trains should be marked off on the skeleton diagram in pencil between Shogi and Jutogh.

The furthest entraining station is Taksal whence a bullock train and some country carts have to be despatched. From an inspection of the time-table we see that a train leaving Taksal to timing G or any later timing on the 1st day of the block, will arrive at the base on the 3rd day of the block; from this we see that the 1st, 2nd and 3rd days of arrival coincide with the 1st, 2nd and 3rd days of the block which, as already explained, is not necessarily the case; for if Taksal had been 4 days' journey from the base, or if there were more trains starting from Taksal than could get away by timings G. to B. B. inclusive on the 1st day of the block, it is obvious that we should have trains arriving at the base on the 4th day of the block, i.e., the last (or the 3rd) day of arrival would be the 4th day of the block. In order that there may be no confusion,

the term "day of arrival" should not be used, in fact no days should be mentioned except—

- (a) day of mobilisation, denoting the number of days since orders were given to mobilize;
- (b) day of concentration, denoting the number of days since concentration commenced;
- (c) day of block, denoting the number of days since the block commenced running.

We have, then, to select 4 timings out of the 8 available for our bullock train and country carts. G. K. and A. A. appear the best for the three trains taking the bullock train, as they give the greatest interval and most daylight for loading; by commencing to entrain at dawn and shunting each train off into a siding to wait till it was time to start, there would not be the least difficulty in entraining the bullock train off a single platform. The timing for the train of country carts should not be selected till later when it is seen which of the 5 timings available is not required for anything else. The other entraining stations should be dealt with in the same way, and although it is not claimed that the solution actually given is the best, it will be seen to illustrate the principles which have been laid down above.

Conclusion.—In conclusion we may summarise the steps to be taken in preparing a scheme.

1. Find out the greatest limiting factor and fix the number of trains a day accordingly.
2. Prepare a time-table.
3. Divide the units into convenient blocks.
4. Allot trains to the units in each block.

In working out No. 4, entraining and terminal facilities must never be lost sight of, and a little care and trouble expended in this direction will be amply repaid.

THE CONCENTRATION OF TROOPS BY RAIL.

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FIG. 2.
Abstract Time-table.

		A	B	C	D	E	F	G	H	J	K	L	M	AA	BB	Mail.	Pass.	Mixed	
Taksal	...	d. 10-47	23-6 15-22	4-0 17-7	6-0 M	6-49 T	9-19 21-50	11-21 23-57	13-7 1-49	16-10 2-40	17-16 3-56	18-0 5-30	18-50 M	20-20 M	21-6 7-10	18-20 0-20	12-30 22-0		
Gumman	...	d. 13-47	15-52 18-41	17-37 20-35	19-40 22-26	20-57 28-30	22-30 1-3	0-17 3-10	2-9 5-0	3-0 5-50	4-16 7-11	5-50 8-48	8-8 10-39	9-28 12-7	10-10 13-15	0-39 2-40	22-15 0-42		
Koti	d. 17-10	19-11	21-5 0-23	22-36 1-30	23-40 2-48	1-13 3-50	3-20 6-8	5-10 7-47	6-30 9-29	7-61 10-38	9-18 12-6	11-19 14-16	12-47 15-46	13-55 17-3	2-50 4-37	0-52 3-46	
Jabil	d. 19-54	22-27	0-33 5-30	22-57 6-20	1-40 8-20	1-40 9-9	2-58 11-30	4-0 13-20	6-48 14-38	8-27 15-46	9-39 16-48	10-48 19-45	12-16 19-45	15-55 20-53	17-13 22-9	4-47 7-50	3-56 8-48
Dharmpur	...	...	d. 1-6	3-57	5-30 T	6-20 M	8-20 M	9-9 M	11-30 M	12-9 M	14-30 17-38	16-20 18-46	17-38 19-48	19-48 20-25	21-33 22-49	22-49 8-0	9-18 12-38
Barogh	d. 7-21	11-38	4-57 13-18	6-30 T	7-0 13-47	11-20 17-50	12-9 T	14-30 T	16-20 22-9	17-38 0-7	18-46 1-11	19-48 1-52	20-25 2-10	21-33 3-0	22-49 4-40	8-0 12-38	9-18 15-28
Kathlight	d. 11-52	15-48	11-48 17-22	12-28 18-23	14-17 22-19	18-30 23-27	19-17 1-4	21-0 2-23	22-19 4-1	0-17 5-33	1-21 5-50	2-12 6-23	2-20 7-10	3-10 8-41	4-50 M	12-48 15-7	15-38 19-20
Chail	...	d. 12-26	14-32	18-59 21-3	20-21 22-19	21-25 1-4	23-0 2-23	0-21 4-1	1-55 5-33	3-27 7-0	5-2 8-33	6-29 8-33	8-2 9-59	9-18 11-21	13-49 15-7	...	
Kathlight	...	d. 14-52	16-48 22-55	18-22 0-18	21-23 3-16	22-39 4-43	23-47 T	1-24 T	2-43 8-47	4-21 10-9	5-53 11-48	7-20 13-18	8-53 14-48	10-19 16-20	11-41 17-47	15-27 19-30	19-50 1-49		
Shogi	...	d. 21-31	23-5 1-30	0-28 3-17	3-36 6-8	4-53 7-24	6-20 8-56	8-7 10-18	8-56 11-50	10-49 13-27	12-28 14-58	15-28 16-32	15-58 16-32	17-0 18-10	18-27 19-20	20-0 20-51	1-59 4-28		
Jutogh	...	a. 0-3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

T denotes a halt for tea or for water for animals.

M denotes a halt for a cooked meal.

FIG. 8.

Plan of movement X Block J. A.

Military Train No.	Unit.	ENTRAINMENT.			Timing of Train.	DETRAINMENT.		
		Place	Day of block.	H. M.		Place.	Day of block.	H. M.
967th Bullock Train.								
2	a	Shogi ...	1	12 28	K	Jutogh	1	14 58
4	b	" ...	1	15 28	M	"	1	18 10
6	c	" ...	1	18 27	BB	"	1	20 51
3	264 country carts ...	" ...	1	13 58	L	"	1	16 32
968th Bullock Train.								
9	a	" ...	2	4 53	E	"	2	7 24
12	b	" ...	2	9 27	H	"	2	11 50
14	c	" ...	2	12 28	K	"	2	14 58
901st Bullock Train								
1	a	Chail ...	1	1 55	J	"	1	13 27
5	b	" ...	1	8 2	AA	"	1	19 20
7	c	" ...	1	12 26	A	"	2	0 3
365th Camel Corps.								
8	a	Barogh	1	14 17	D	"	2	6 8
10	b	" ...	1	19 17	F	"	2	8 56
20	c	" ...	2	14 17	D	"	3	6 8
22	d	" ...	2	19 17	F	"	3	8 56
11	264 country carts ...	" ...	1	21 0	G	"	2	10 18
333rd Camel Corps.								
13	a	Jabli ...	1	9 39	J	"	2	13 27
15	b	" ...	1	12 17	L	"	2	16 32
16	c	" ...	1	14 26	M	"	2	18 10
18	d	" ...	1	17 13	BB	"	2	20 51
334th Camel Corps.								
25	a	" ...	2	9 39	J	"	3	13 27
27	b	" ...	2	12 16	L	"	3	16 32
28	c	" ...	2	14 26	M	"	3	18 10
30	d	" ...	2	17 13	BB	"	3	20 51
943rd Bullock Train.								
17	a	Koti ...	1	12 37	AA	"	2	19 20
19	b	" ...	1	17 10	A	"	3	0 3
21	c	" ...	1	23 40	E	"	3	7 24
999th Bullock Train								
23	a	Taksal	1	13 7	G	"	3	10 18
26	b	" ...	1	17 16	K	"	3	14 59
29	c	" ...	1	20 20	AA	"	3	19 20
24	264 country carts ...	" ...	1	14 51	H	"	3	11 50

FIG. 4.—Table of Stock required at each Station.

Block J. A.

FIG. 4.—Table of Stock required at each Station—(concluded).

Station.	Unit.	Train of Units.	Stock Required.	Day of Departure.			Remarks.
				1	2	3	
1 Jabli	333rd Camel Corps ...	a b c d	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	9-30 12-16 14-26 17-13
	Total, 1st day ...	...	...	...	...	...	13 15 16 13
2 ...	334th Camel Corps ...	a b c d	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	J L M BB
	Total, 2nd day ...	...	...	...	...	...	25 27 28 30
1 Koti	943rd Bullock Train	a b c d	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	J L M BB
	Total, 1st day ...	...	...	...	...	...	17 19 21
1 Takali	999th Bullock Train	a b c d	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	G K AA H
	Country carts	...	...	...	...	...	23 25 26 24
	Total, 1st day ...	...	...	1 1 1 1	10 10 10 10	44 44 44 44	14-51 14-51 14-51 14-51
							7 7 7 7
							179 179 179 179

Block J. A.

Abstract of Stock required daily.

FIG. 5.

Day.	Station.	Stock Required.						REMARKS.					
		1st Class.	2nd Class.	3rd Class.	Wagons, covered.	Trucks, low-sided.	Wagons, open.						
1	Shogi	...	...	...	1	10	5	44	112	...	7	179
	Chail	...	...	...	...	10	5	...	112	...	6	134
	Barogh	...	...	...	...	...	2	44	82	...	5	135
	Jabli	1	4	3	...	163	1	8	180
	Koti	1	10	5	...	112	...	6	134
	Takesal	1	10	5	44	112	...	7	179
	Total, 1st day		...	...	5	46	25	132	693	1	39	941
2	Shogi	...	...	...	...	10	5	...	112	...	6	134
	Barogh	...	...	...	...	2	1	...	81	1	4	90
	Jabli	1	4	3	...	163	1	8	180
	Total, 2nd day		...	...	3	16	9	...	356	2	18	404

ELEMENTARY ASTRONOMY FOR MILITARY PURPOSES.

BY CAPT. A. G. THOMSON, 58TH RIFLES F. F.

Though a knowledge of astronomy is not indispensable to the soldier, as it is to the sailor, it is at least a convenience for the former to have some acquaintance with the science. In this paper an attempt is made to state a few facts, which may be of use during a campaign or on manœuvres, together with an explanation of some elementary astronomical laws.

The apparent movements of the sun, moon and stars are principally due to the motion of the earth. The earth has a double motion: first, rotation from west to east on its axis, which is the line joining its north and south poles; and, secondly, revolution in an orbit round the sun. Rotation on its axis causes the heavenly bodies to rise in the east, and to pass over to the west where they set. Revolution round the sun causes an alteration from day to day in their times of rising and setting, and produces the seasons of the year.

The divisions into which the Universe naturally falls are:—

- (1) The Solar System, consisting of the sun; the planets, of which the earth is one; and other less important bodies.
- (2) The rest of the Universe, of which the Stars are the most familiar feature.

It will, however, be more convenient for our present purpose to consider them in the following order:—

The Sun.
The Moon.
The Stars.
The Planets.

THE SUN.

As already stated, the earth's rotation on its axis causes the daily rising and setting of the sun. Before noon the sun, being east of south, will cast a shadow west of north, at noon the shadow will be thrown north, and in the afternoon eastwards. Between consecutive returns of the sun to the same point in the sky twenty-four hours elapse. This statement is not strictly accurate owing to certain necessary adjustments in regulating our time, which, however, need not be considered here. During the twenty-four hours the earth performs a complete rotation, and a little more besides—nearly one degree—owing to its rotation in its orbit, the effect of which will be explained later on, when we come to consider the apparent movements of the stars. A point on the earth's surface, therefore moves through approximately 361° in 24 hours, that is to say, at the rate of 15° in about an hour, or 1° in 4 minutes.

Since, then, we know that a shadow cast by the sun moves 1° in about 4 minutes, we can determine the north point fairly accurately without elaborate calculations, provided we know the time. For instance, at 10-30 A.M. the shadow will fall about 22° west of north, or again at 3-0 P.M. it will fall about 45° east of that line. This and other methods of finding the true north are, of course, familiar, and the subject has only been gone into at some length because it is necessary to note a complication peculiar to countries, which extend a considerable distance east and west, and where a standard time has been adopted, such as India.

In India standard time is fixed at $5\frac{1}{2}$ hours in advance of Greenwich time. It is the local time of longitude $82^{\circ} 30' E.$ Accordingly, if the observer is some distance away from that longitude, the time shown by his watch will vary from the local time, as shown by the sun at the spot where he is standing. For instance, if his position is to the west of $82^{\circ} 30'$ the sun will still be east of south when his watch shows 12 o'clock, and the shadow will be thrown west instead of north; and similarly if he is east of it, the sun will have passed the north and south line and the shadow will lie to the east. To make this clear, let us consider the case of Calcutta which is approximately 6° east of longitude $82^{\circ} 30'$, and let us suppose that Allahabad, which is only about half a degree west of that longitude, is actually on it. As the earth rotates from west to east, the more eastern city, Calcutta, will first see the sun. Supposing Calcutta sees it at 6 A.M. local time—that, in fact, the sun rises in Calcutta at 6 A.M.—the earth must go on rotating through six degrees before the sun becomes visible at Allahabad, and, as we have seen above, it will take twenty-four minutes to do so, by which time it will be 6-24 A.M. at Calcutta while it is 6-0 A.M. at Allahabad. So all through the day Calcutta's local time will be 24 minutes in advance of the standard time, and local noon will occur when the watch shows 11-36 A.M. In other words, if one is setting a map by the sun in Calcutta when one's watch shows 12 noon, one must remember that the north and south line will be about 6° west of the shadow. Similarly in Karachi, the longitude of which is approximately 67° east, we must allow for a difference of $82\frac{1}{2}^{\circ}$, 67° , or $15\frac{1}{2}^{\circ}$ west of the $82\frac{1}{2}^{\circ}$ meridian; so that when the watch shows 12 noon the north and south line will be approximately $15\frac{1}{2}^{\circ}$ east of the shadow.

It is, therefore, obvious, that in order to eliminate a part of the error, to which the method of finding the north point by the sun and a watch is liable in India, one ought to know approximately the longitude of one's position and allow for it.

It has been said above that the statement that the sun returns to its position in the sky in 24 hours is not strictly accurate. This is due to the fact that the rate of the apparent movement of the sun is not uniform throughout the year. If, therefore, our time were regulated strictly by the sun's apparent movement, we would have days and hours of varying length which would be inconvenient. To

obviate this inconvenience, a "mean" time has been fixed upon, that is to say that to the results of observations of the sun, made to ascertain the time, a few minutes—called technically the equation of time—is added or subtracted. The difference is never greater than about quarter of an hour, and for most of the year is much less. It may therefore be neglected by us.

The explanation of this irregularity in the apparent movement of the sun is beyond the scope of this paper. It is chiefly due to the fact that the earth does not move in its orbit at a uniform pace, and that the plane of the orbit is not parallel to the equator, but is inclined to it at an angle of about $23\frac{1}{2}^{\circ}$. The path of the sun among the stars, called the Ecliptic, is therefore inclined to the equator at that angle.

The next point to be considered is the position of the sun at sunrise and sunset. The sun only rises and sets due east and west twice a year, about March 20th and September 22nd, at the vernal and autumnal equinoxes, when day and night are equal all over the world. From the vernal equinox until the summer solstice, which occurs about June 22nd, the sun rises and sets each day more and more to the north of the equator, the days in the Northern Hemisphere becoming longer and the nights shorter. After the summer solstice the sun returns south again, reaching its maximum distance south of the equator at the winter solstice, about December 22nd. If, then, we are getting our bearings in the early morning or evening, we must remember that the sun will be north of an east and west line in summer, approximately upon it during March and September, and south of it in winter. How much north or south depends on our latitude; it will be sufficient to note that the greater the latitude the greater the difference: near the equator, say in Southern India, the difference is small, in the Punjab considerable, while in Great Britain it is greater still.

The daily change in the sun's position is due to the inclination of the earth's equator to the plane of its orbit. The earth's axis is consequently tilted at an angle to the sun. Now, while the earth revolves in its orbit, its axis remains parallel to itself. Accordingly, at one period of the year the North Pole is directed away from the sun and it is winter in the Northern Hemisphere. Six months later, when the earth has passed to the opposite side of the sun the North Pole is directed towards the latter and it is summer in the Northern Hemisphere.

It is sometimes important to be able to estimate how much longer daylight will last when evening is approaching and we do not happen to know the hour of sunset. A rough method is as follows. We have seen that the sun passes through an angle of 15° an hour. Now the angle subtended at the eye by the span of the hand when held at arm's length is about $18'$. So, if the span is extended with the thumb on the horizon and the sun appears about the end of the little finger, we can guess that about one hour will elapse before sunset.

THE MOON.

The revolution of the moon round the earth combines with the motion of the earth to complicate the moon's apparent movement.

The most noticeable thing about the moon is the change in her appearance and illuminating power from night to night, and that the period during which she is above the horizon between sunset and sunrise varies with these changes, or phases as they are called.

The practical questions for us with regard to the moon are—what portion of the night will be illuminated by her and how much light will she give.

The moon emits no light of her own, but merely reflects light from that portion of her surface which is turned towards the sun. Her appearance, therefore, and the amount of light which she gives us depend on how much of that portion can be seen from the earth.

When the moon is between the earth and the sun, her dark side is turned towards us and we see nothing; in this position it is "new moon." As she travels round, more of the lighted hemisphere gradually becomes visible, increasing from a faint crescent until she reaches the point where the earth is between her and the sun. We then see the whole of the lighted portion and call it "full moon." As she continues her journey round towards the sun again, less and less of the lighted portion can be seen, its appearance gradually decreasing to a crescent once more, until the position of the new moon is regained. The period between new moons is about $29\frac{1}{2}$ days, but varies from several causes as much as 13 hours.

Since the moon travels in her orbit from west to east, she will lie east of, and close to, the sun, and set soon after it, when the crescent first becomes visible after new moon. The next night she will be farther east and will set at a greater interval behind the sun. Night by night the distance will increase, until the full moon will rise about the time of sunset. As the month progresses the moon will rise later, until towards the end of the month she will come close to the sun again but west of it, rising only a short time before sunrise. Hence after new moon she is above the horizon during the first part of the night only, about full moon there is moonlight nearly all night, and as the moon wanes she only appears in the latter part of the night.

It would be useful to be able to calculate quickly the approximate hour of moonrise. She will rise so many minutes later each night, and the period depends partly on the apparent rate of movement of the moon as compared with the sun, since our time is regulated by the latter: but unfortunately many other factors enter into the question, and no rough and ready calculation can give good results. The only practical plan is to observe the difference of time for a night or two. The difference will not vary greatly on consecutive nights, though considerable variation may occur during the month as a whole.

Though rather beyond the scope intended for this paper, some indication of the factors which affect the time of moonrise may be of

interest. As it is difficult to avoid some technicalities, a few definitions are needed :—

The Celestial Equator may be described as the intersection of the plane of the earth's equator with the Celestial Sphere. It is a great circle on the sky midway between the north and south celestial poles.

The Ecliptic is the annual path of the sun among the stars. It is a great circle in the plane of the earth's orbit, and is inclined to the equator at an angle of $23^{\circ} 28'$. It crosses the celestial equator at two points, 180° apart.

The Equinoxes are the times when the sun crosses the equator. The term is also used to denote the points where the ecliptic crosses the equator, and it is used in this sense below.

The Vernal and Autumnal Equinoxes, therefore, are the points of the ecliptic where the sun crosses the Equator in the spring and in the autumn respectively.

Declination is the distance of a heavenly body north or south of the Celestial Equator.

The Nodes of the moon's orbit are the points where it crosses the ecliptic. The point where the moon crosses from south to north is called the Ascending Node : where she crosses from north to south, a fortnight later, is the Descending Node.

First, to consider the relative movement of sun and moon. The moon travels eastwards in her orbit about $13^{\circ} 11'$ on an average in 24 hours. As the earth travels westwards in its orbit about 1° in that period, the sun apparently travels this amount eastwards every day. Therefore the moon gains about $12^{\circ} 11'$ on the sun every 24 hours ; or, more approximately, the gain is $12^{\circ} 11\frac{4}{5}'$. Consequently, the moon will come to the meridian of any point on the earth's surface about 51 minutes of time later each day on an average.* The extremes of this average are considerable, because the moon's speed is so far from uniform as to cause the period to vary approximately from 38 to 66 minutes. Still, 51 minutes would be the average amount of the daily retardation of moonrise, if it depended only on the relative speed of sun and moon.

Secondly, the orbit of the moon is inclined to the equator, so that she crosses the latter twice in completing a revolution round the earth. Consequently, her declination changes between north and south in the course of the month, and this will alter the times of rising and setting in a greater or less degree according to the latitude of the observer, for similar reasons to those which cause an alteration in the times of sunrise and sunset according to the declination of the sun in the course of the year.

* Let X° be the angle, in excess of 360° , through which a point on the earth's surface rotates between successive arrivals of the moon at the meridian. Then $4X$ minutes, or $X/15$ hours, will be the time taken by the point to rotate through that angle : and X will also be the amount which the moon gains on the sun in $(24 + X/15)$ hours. Therefore, $X : 12\frac{11\frac{4}{5}}{60}' :: (24 + X/15) : 24$, from which $4X = 50\frac{1}{5}$ minutes, approximately.

Thirdly, the amount by which the moon's declination changes is greater in some months than in others. The cause of this is that the Nodes are not fixed points, but make a slow circuit of the ecliptic in about 19 years, and the greatest and least monthly changes in the moon's declination occur when the Ascending Node coincides with the Vernal and Autumnal Equinoxes respectively, as it is hoped the following explanation will show.

The inclination of the moon's orbit to the ecliptic varies little from a mean of $5^{\circ}8'$. It therefore crosses both equator and ecliptic twice a month. If we trace the Ecliptic round from west to east, i.e., in the direction of the moon's movement in her orbit, we find that the ecliptic crosses the equator from south to north at the Vernal Equinox, and from north to south at the Autumnal Equinox.

When the moon's Ascending Node coincides with the Vernal Equinox, the moon will pass at that point from south to north of both ecliptic and equator. Its orbit will, therefore, make an angle with the equator of $23^{\circ}28' + 5^{\circ}8' = 28^{\circ}36'$; and this angle will be the moon's maximum declination north and south during this month.

About $9\frac{1}{2}$ years later when the Ascending Node coincides with the Autumnal Equinox, the moon, though passing from south to north of the ecliptic, will cross the equator from north to south. In this case the angle of its orbit with the equator will be $23^{\circ}28' - 5^{\circ}8' = 18^{\circ}20'$; and this angle will be the moon's maximum declination north and south during this month.

Therefore, in the former case the moon's declination will alter $57^{\circ}12'$ during the month: in the latter case it will alter $36^{\circ}40'$ only.

Now, similarly to the case of the sun, the moon will rise later and set earlier in the Northern Hemisphere when she is very far south than when she is less far south: and will rise earlier and set later when she is very far north than when she is less far north. Consequently, there will be greater changes in the times of her rising during months when her declination varies $57^{\circ}12'$ than during those months when the variation is only $36^{\circ}40'$; and those changes will be greater if the observer is in high latitudes than if he is in the tropics.

In calculations of the hours of moonrise the action and counteraction of all these factors have to be considered, and the problem therefore requires considerable labour for its solution.

THE STARS.

The daily rotation of the earth causes the stars to rise in the east and set in the west. Accordingly, the axis of the earth indefinitely produced will be the axis of the apparent daily movement of the stars, and the points when the production of the earth's axis can be imagined to pierce the sky are called the North and South Celestial Poles. Whichever of these points happens to be above the horizon will be the centre of the circles which the stars appear to describe daily. In the Northern Hemisphere the centre

will be the North Pole ; in the Southern Hemisphere it will be the South Pole.

Now the height of the Celestial Pole above the horizon varies according to the latitude of the observer. The angle of the pole above the horizon is, in fact, the same as the observer's latitude. So in the Punjab—say at latitude 32° N.—the North Pole will be 32° above the northern horizon, while in England—say at latitude 52° N.—it will be 52° above the horizon. The apparent movement of the stars will therefore be different in different latitudes. In high latitudes the arcs, which the stars appear to describe, are more nearly parallel to the horizon than in low latitudes, since their centre, the pole, is nearer the zenith. Except from the earth's equators, then, the stars do not appear to move from east due west, but in the Northern Hemisphere after rising they move somewhat south of east until they reach their highest point, after which they descend to the horizon in a direction rather north of west.

A second point to be noticed is that the appearance of the sky is not the same throughout the year. Stars which are visible in winter cannot be seen in summer : a star, which we see just rising at midnight, will be well above the horizon at the same hour a month later : and, in fact, close observation will shew a slight change in the position of the stars from night to night. This is due to the earth's movement westwards in its orbit (towards the right hand as one stands facing the sun in the northern hemisphere), which causes the sun apparently to travel eastwards among the stars. In other words the stars move westwards as compared with the sun, that is to say, as compared with our time. Therefore on any night the stars will appear to be a little west of the positions which they occupied at the same hour on the previous night, so that a star just rising to-night will be a short distance above the horizon to-morrow at the same hour.

In fact the stars will rise a little earlier each succeeding night, and the next question is how much earlier. Since the earth completes its revolution round the sun in about 365 days, it travels about one degree in its orbit in 24 hours, and therefore the stars will appear one degree further west every night. So a point on the earth's surface, after it returns by the earth's rotation to the position which it occupied the previous day with regard to a star, must continue the rotation through one degree past the star before it reaches the position which it occupied the previous day with regard to the sun : that is to say, before 24 hours elapse. The question has already been referred to in the section dealing with the sun where we also saw that the earth takes about four minutes to rotate through one degree. Therefore the stars will rise about four minutes earlier from night to night, or about two hours in a month.

Since the apparent daily motion of the stars is due to the earth's rotation, they all move through the same angular distance in a given time, those near the Pole moving on small circles, and therefore changing their position less than those farther away

from the Pole, which move on larger circles. Their arrangement in the sky is therefore constant, and this fact has permitted man to divide them into constellations, which are distinguished by names and can be easily recognised after a little study.

The chief use of the stars to the soldier is to enable him to find his bearings and also to act as points of direction when marching at night on a compass bearing. For the former it is necessary to be able to recognise a few constellations and to know what positions in the sky they will occupy at different hours of the night and seasons of the year; for the latter it is convenient to be able to identify the star required by name, or, at least, to refer it to some adjacent known star.

We have seen that the Poles do not change their position with the daily rotation of the earth, and that stars far from the Pole change theirs more quickly than those near to it. Unless a star which has been selected as a directing point is near the Pole, it is necessary to check its bearing every ten minutes or so, and to select another if it is found to have moved much off the bearing.

The Northern Hemisphere is more fortunate than the Southern in having the Pole marked by a fairly conspicuous star with sufficient exactness for our purpose. The Pole Star, as it is called, is only $1\frac{1}{2}$ ° from the North Pole and is so placed with regard to other conspicuous stars that it can be easily identified, as will be apparent from the diagram.

Astronomers employ various methods for distinguishing the stars, but in dealing with the more conspicuous ones it is sufficient to notice the alphabetical method. In each constellation the stars are lettered *a*, *b*, *c*, etc., beginning as a rule with the brightest and continuing with the next in order of brightness. Many of the brighter stars have names of their own as well.

The constellation of the Plough, which forms part of Ursa Major, is easily distinguishable in the northern sky as it is formed of bright stars arranged in a distinctive manner. A line drawn through *b* and *c* of this constellation passes close to *a* of the Little Bear, which is the Pole Star. The two former stars direct the eye to the latter, and from this circumstance are called The Pointers. Again, the Pole Star is at the end of the tail of the Little Bear, which, although formed of less brilliant stars, bears some resemblance to the Plough. Another conspicuous constellation in the vicinity is Cassiopeia, in which five bright stars form a somewhat flattened 'W'. This constellation is on the other side of the Pole Star from the Plough, and the 'W' faces the Pole Star. In Great Britain none of these stars set, but in Northern India, the Pole being much nearer the horizon, both the Plough and Cassiopeia do so. The Little Bear does not set in the Punjab. The Pole itself lies $1\frac{1}{2}$ ° away from the Pole Star, very nearly on a line joining the latter with *G* of Ursa Major.

With the Pole Star as a reference point any desired true bearing can be roughly ascertained by measuring round the horizon

with the span of the hand from the point on the horizon vertically below the Pole Star. Suppose the measure is $2\frac{1}{2}$ spans. This (see page 435) is equivalent to about 45° . If one has measured round towards west, the required bearing is about 315° : if towards east the bearing is 45° .

A star can also be pointed out by hand-spans. Astronomers identify stars in various ways, all of which depend on the principle of "intersection." The method, which can best be employed without instruments or books of reference, is that which has for one of its co-ordinates the star's vertical distance above the horizon, and for the other co-ordinate the angle made at the zenith by a circle, perpendicular to the horizon and passing through the star, with the observer's meridian. Technically the first co-ordinate is called the star's Altitude, and the second is its Azimuth. The Azimuth can be found by measuring round the horizon from the north point of the latter to the point vertically below the star, and may be expressed in degrees like a bearing. By measuring these co-ordinates with the hand one can roughly indicate the position of a star to another person. For example, suppose the Azimuth is three spans round towards the east and the altitude one span. The point of the horizon vertically below the star is found by measuring three spans along the horizon towards the east from the point vertically below the Pole Star. Then the star itself is fixed by measuring one span vertically upwards from the point so found. It will be obvious from what has been said above about the apparent motions of the stars, that Azimuth and Altitude are continually changing quantities.

The best way to learn the constellations is to go out with some one who can point them out. Failing this, there are several simple star charts published for the purpose.* Not much can be done towards conveying a knowledge of the constellations in a paper of this sort, but the more important groups and stars may be indicated.

In the winter in the early part of the night Cassiopeia will be seen high in the sky above the Pole Star. West and east of Cassiopeia two bright stars will be noticed, the former rather farther away from Cassiopeia than the latter. The former is Vega, the brightest star in the constellation of Lyra, the latter is Capella, the principal star of Auriga. South of Auriga is the conspicuous constellation of Orion. The three bright stars, known as Orion's belt, across the centre of this group guide the eye to two brilliant stars. The line of the belt produced upwards passes close to a star easily recognised by its red colour. This is Aldebaran in the constellation of Taurus. Following the belt downwards, the eye is guided to the brightest star in the sky, Sirius, in the constellation of Canis Major.

* "The Constellations and How to Find Them" by William Peck, F.R.A.S. (Gall and Inglis, London and Edinburgh) contains 12 clear charts, showing the position of the stars for every month in the year. It is published in two small volumes, for the Northern and Southern Hemispheres respectively.

Once a few groups, like the above, can be recognised, it is a matter of little difficulty to grasp the chief constellations by comparing the sky with a chart, if the latter shows only the principal stars in each group. If the chart shows too many of the smaller stars it is apt to be confusing.

In early summer the Plough appears above the Pole Star before midnight. West of the Plough, almost in a line with the stars S and L (see diagram), Capella can be seen in the spring. The two end stars of the tail of the Plough, G and N point nearly to a bright star called Arcturus in Bootes, and west of the latter Regulus in Leo can be easily recognised. South of a line from Arcturus to Regulus will be seen Spica, the chief star in Virgo.

The ecliptic can be traced approximately in the sky when the constellations of the Zodiac are known. The Zodiac is a belt 16° broad, extending 8° north and south of the ecliptic. It has been divided since ancient times into twelve constellations. From west to east these are :—Aries, the Ram; Taurus, the Bull; Gemini, the Twins; Cancer, the Crab; Leo, the Lion; Virgo, the Virgin; Libra, the Scales; Scorpio, the Scorpion; Sagittarius, the Archer; Capricornus, the Goat; Aquarius, the Water-bearer; Pisces, the Fishes.

THE PLANETS.

The planets, which are the principal members of the Solar System after the sun, are eight in number including the earth. Their names beginning with the nearest to the sun are :—Mercury, Venus, The Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

Mercury and Venus revolve in orbits inside that of the earth, the former taking 88 days to complete the revolution and the latter 225 days. They, therefore, appear to us to swing from side to side of the sun. Mercury is seldom visible to the naked eye, because being so near the sun it is only above the horizon during twilight, but Venus when at those portions of her orbit where she can best be seen is a brilliant object, appearing at intervals of a few months alternately as a morning and evening star, according as she is situated west or east of the sun. Her brilliancy and the phases she presents make her an interesting object even with a small telescope to any one at all interested in astronomical phenomena.

Mars revolves in an orbit outside that of the earth, and requires 687 days to complete the revolution.

Far outside Mars, Jupiter revolves in an orbit which it completes in 12 years. Saturn requires about 29 years to complete its revolutions : Uranus 84 years: and Neptune travels in an orbit so vast that the Planet's year equals nearly 165 of our years.

Those planets whose orbits lie outside the orbit of the earth appear to us to behave differently from those nearer the sun. While the former are never seen far from the sun, the latter pass right round the heavens in the course of their revolution.

The planes of the orbits of the planets do not differ greatly from the plane of the earth's orbit. They are therefore only found in the vicinity of the ecliptic, near the constellations of the Zodiac.

Owing to their proximity to the earth, their own motions and that of the earth cause the planet to change their positions with regard to the stars. For this reason they cannot be shown on star charts. Whenever a bright star, which cannot be identified on a map, is noticed near the ecliptic, it may be suspected as a planet. Careful observation from night to night would confirm the suspicion by revealing its motion, but reference can be made to an astronomical almanac (Whittaker, for instance) which shows in what constellations the planets are situated from month to month. The appearance of the planet will help towards its identification.

Venus is more brilliant than any star and is never far from the sun. Mars shines with a ruddy light. Jupiter is nearly as brilliant as Venus. Saturn is brighter than all but a few stars. Uranus is faint and only just visible to the naked eye. Neptune is invisible to the naked eye, and may in consequence be altogether neglected from our present point of view.

THE EMPLOYMENT OF HEAVY ARTILLERY IN THE FIELD.

By R. G. A., COMMANDANT, 30-PR. BRIGADE.

The employment of Heavy Artillery in the field has been a feature of more or less significance in almost every campaign since the Crimea; but it is somewhat remarkable that, notwithstanding the lessons of experience, India has, until 1903, been the only country to create and maintain in peace time heavy batteries for employment with the field army entirely distinct from the siege train; and that since 1903 India as opposed to Home appears to have remained silent as to how such heavy batteries were to be used with a field army and certainly has allowed their equipment, if not their training, to fall far behind the times.

Up to the present Heavy Artillery organised and trained as such with the field army in peace has never been employed in war by any nation; but the pressure of necessity has almost invariably caused heavy batteries of some kind to be improvised and employed sooner or later during the course of a campaign. Batteries so improvised with material not specially designed for employment with the field army and personnel untrained in the tactical and technical training of field artillery could hardly be expected to achieve the results which may reasonably be expected from a permanent organisation with a suitable equipment and a highly trained personnel familiar with field operations and directed by Generals accustomed to handle Heavy Artillery with the same confidence as if they were dealing with Field Artillery.

For this reason the experience of war does not furnish instances of the employment of Heavy Artillery which by any means cover all the ground to be discussed; it does, however, furnish valuable examples of its actual employment under certain conditions, and also most instructive examples of cases in which its employment would have had far-reaching results if it had been available and intelligently employed.

It is necessary to explain what is exactly referred to in this paper as Heavy Artillery, the term being so comprehensive as to admit of covering a large category of pieces. By Heavy Artillery I mean exactly what we now have in our army under that name, *viz.*, batteries equipped with the heaviest guns that experience has proved to be capable of active association with the normal operations of a field army and suitable therefore to be incorporated as an integral part of a division.

It will be seen therefore that the equipment must be discussed concurrently with the rôle which we are going to ask the Heavy Artillery to carry out. If we turn to our Field Service Regulations,

Part I, 1909, we find at page 14 that "Heavy Artillery is the least mobile of all artillery used in the field, it can fire accurately at long ranges and has great shell power. Its principal duty is:—

- (1) To engage shielded guns with oblique fire.
- (2) To enfilade cover which the lighter guns can only reach with frontal fire.
- (3) To search distant localities in which supports and reserves are concealed.
- (4) To destroy buildings or other protections occupied by the enemy.
- (5) In the final stage to support the assault by fire converging on the most important points."

The question arises "Are these the requirements of Heavy Artillery in India." More or less I think they may be said to include the requirements, but I would offer as headings the following suggestions meant to more definitely fix the rôle of Heavy Artillery in this country:—

- (1) To endeavour to silence at distant ranges hostile guns that may command lines of advance.
- (2) To destroy villages and houses held by the enemy.
- (3) To hold the rear guard at an abnormal distance from its main body by shelling the main body at very distant ranges, the heavy guns being with the pursuing enemy.
- (4) To cover a retirement by compelling the pursuers to deploy at long distances.
- (5) To destroy shielded guns either by direct hits or by the employment of oblique fire.

As examples of these different rôles I will quote, without going too deeply into each one, instances of the actual employment or instances of where had they been employed good results would have ensued.

1. TO SILENCE GUNS.

Alleman's Nek where our heavy guns silenced several of the Boer guns and enabled the 7th and 64th Field Batteries to change position under this fire and so enfilade the Boer position.

La-Mu-Tun.—If the commander of the 6th Japanese Division had had heavy long range guns which he could have placed on the high ground between Chang-Yu-Tun and Sun-Chia-Tez commanding the Russian batteries that fired on the approaches to La-Mu-Tun, many hours and hundreds of lives would have been saved.

2. DESTRUCTION OF VILLAGES AND HOUSES.

Matsunaga's Brigade at Senkinja.—This is a negative instance. Matsunaga's 3rd Brigade concentrated in a village in the Kamiruika Valley previous to the occupation of the heights of Senkinja. Had the Russians had heavy guns this could not have taken place.

Rôles 3, 4 and 5 are not entirely supported by actual incidents, but it is obvious that the rôle of a rear guard being to allow its

main body to get away it is obvious that it must stay as far behind as is necessary to keep the main body free from artillery fire and in doing this it runs the risk of being cut off.

4 speaks for itself. If you have Heavy Artillery either with the rear guard or at the tail of the main body you may by long range fire compel the pursuers to deploy at long distances and thus effect your own retirement.

The fire of heavy guns on shielded guns with lyddite shell at long ranges with a view of getting direct hits has been attended with great success at the Practice Camps at Home.

To enfilade the batteries of shielded guns it is necessary to have a gun with a long range time shrapnel shell so as to allow it to get well to a flank without approaching the defender's line any closer.

If we accept these as the rôles of Heavy Artillery employed in the field in India we come then to a consideration of its equipment and training. In order to carry out its rôle Heavy Artillery must have a long range powerful shell, the only condition regulating its size and range being the weight behind the team as affecting its mobility.

A heavy gun can be taken over very steep ground and over very rough ground slowly. For instance a 60-pr. battery got up the Trundle, a steep hill overlooking Goodwood Race-course. The same day a 60-pr. battery went up Bow Hill.

At the 1907 Manœuvres a 60-pr. battery went up a hill in Buckinghamshire that the Field Artillery had declined to tackle. It is obvious that the best gun for Heavy Artillery in India is one with the longest range and most powerful shell consistent with its being able to move with the field army wherever that may be employed. So the question is where may a field army be employed? It may be employed in the hills bordering Afghanistan or in the plains of India quelling a rising. Can both these theatres of war be satisfied by one equipment?

I believe they can, but it should be a better gun than the present 30-pr: anyhow it should be better equipped.

We said in the early part of the paper that it was essential to have a Heavy Artillery properly equipped in peace time with officers specially trained in the tactical and technical operations of Field Artillery and led by Generals so well acquainted with Heavy Artillery as to be able to manœuvre it with the same confidence as Field; but this is just what we have not got in India, nor does it appear to be recognised that it is at all necessary to give G. O. C.'s of Divisions an opportunity at manœuvres of practising the employment of Heavy Artillery. I say it in all diffidence and humility and with a conviction that I will be supported by the Generals themselves that very few Divisional Generals in India have considered the rôle of Heavy Artillery, its best place on the line of march when in the ordinary advance, when in pursuit or when in retreat or what targets would be normally allotted to them.

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This is not so at Home. There heavy batteries attend all manœuvres and it must be taken as a proof of the difficulty that is found in properly using them that they have never yet achieved any great success, nor have they come under criticism at the Conferences afterwards. England is not a country for Heavy Artillery but India is. Let us begin to employ it. .

RAPID REPRODUCTION OF RECONNAISSANCE SKETCHES AND PANORAMAS IN THE FIELD.

By H.

Circumstances may often occur when the rapid reproduction of thirty or more copies of a sketch would be exceedingly useful; an important reconnaissance preceding an engagement may give an opportunity of obtaining sketches of ground for which no good maps have before been available; again a good panorama sketch of the enemy's position might be used by an artillery commander, by simply referring to points marked A, B, etc., thereon, for concentrating or dispersing the fire of his batteries on these points. The chief drawback to obtaining copies of such sketches in the field as soon as possible has been that, up to date, the original had always first to be *copied* in special ink on special paper, thereby entailing delay and possible inaccuracies; especially as it was rarely possible that the officer who made the sketch could come into Headquarters and copy it himself.

The method * described below gets over this difficulty and it is suggested that the following should now be done:—(1) Any officer detailed to do a reconnaissance sketch or panorama should be given a bottle of special ink. (2) As is usual the officer will first do his sketch in pencil and will spend a quarter or half an hour "finishing up" or "inking in" his sketch; in order to make it possible to have this sketch reproduced, he will only alter the usual procedure by inking up his sketch in this special ink. There will be no need to rub out any pencil marks or rays, as neither these nor the dirt or perspiration from his hands will reproduce. It can also be safely assumed that he will be able, if it is raining, to ink up in a sheltered spot. The ink works very nearly as easily as ordinary Indian ink and if preferable can be used in a fountain pen which has been previously well cleaned out; the nib should be fine but not very fine. (3) Having inked up his sketch, the officer will roll it up or put it in a waterproof envelope and send it off to headquarters where the required number of copies would be printed off at once.

On an average the first copy can be obtained in a quarter of an hour and further copies can then be printed at the rate of 80—100 an hour. There is no fear of losing the original sketch, as after transferring, a faint but distinct outline remains on the original paper.

At the end are reproduced two examples. The panorama was drawn on a piece of ordinary foolscap writing paper straight away within five minutes, in this special ink, and shows that sufficiently fine work can be reproduced by this method. The reproduction of the reconnaissance sketch was obtained by inking up an old sketch done in pencil and chalk in the field some time ago, and despatching

* This is a well known commercial method and has been satisfactorily adapted to the rapid reproduction of sketches in the field by Captain C. S. Arbery at Army Headquarters, India. From whom all details can be obtained.

it through the post to be reproduced. The first copy of each sketch was obtained within a quarter of an hour and the remaining 1,900 copies required for this *journal* were then printed. This method is very similar to the ordinary zinco or litho transfer process. There are, of course, several rough and ready methods of reproduction, such as multicopyist, roneo, duplex, cyclostyle, etc., etc., but they each have their drawbacks; briefly the advantages over any zinco or litho process is that an unlimited number of copies can be printed off, the writing is waterproof and does not smudge or spread, and much finer detail can be embodied on the map, the disadvantage being the weight of the litho press. Sketches can also be reproduced on ferrotype paper either in white lines on a blue background or black lines on a white background, but this method needs sunlight and therefore excludes all night work.

It is not proposed to go into technical details, but, as officers who can obtain the use of a litho press, might like to try this method or any work requiring reproduction, the following outline is given:—

The sketches at the end are examples of ordinary line work, but this method with slight modification is equally suitable for stumped in hill work by which ground can be more effectively and quickly depicted.

- (a) Ink up the sketch, with a clean pen, as suggested above, in this special ink.* The usual cavalry sketching board paper is probably the most suitable, but any paper with a fairly hard surface will do, as long as it is not too glossy or its texture too absorbent. There is no need to rub out any pencil marks as the inked up lines only will reproduce; in fact the India-rubber should be used as little as possible so as not to destroy the surface of the paper. In inking up it is essential that a certain minimum deposit of the special ink should be left on the paper; the ink will dry in a few minutes but must be allowed to dry spontaneously.
- (b) Damp the sketch well with a dilute solution of nitric acid and also a piece of transfer paper or gum paper about one inch larger all round. When the sketch has become thoroughly damped, it is laid, sketch side downwards, on the zinc plate or stone with the transfer paper as a backing; the edges of the transfer paper overlap and by sticking to the plate prevent the sketch slipping when being pulled through the press under pressure.
- (c) Both papers are then pulled through the press under a fairly heavy pressure, plate reversed and pulled through again and the process repeated about eight times. The original is then removed and comes away intact, zinc plate or stone proved in the ordinary manner, and copies printed off. Sketches should be transferred within two or three days after being made.

MECHANICAL FLARES.

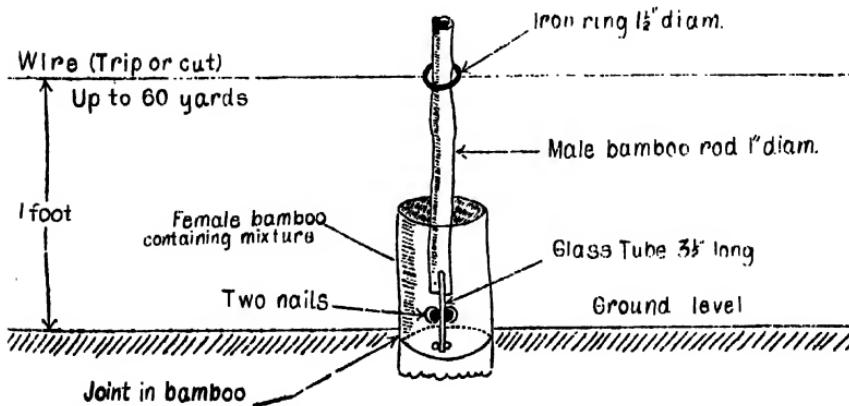
BY CAPTAIN A. C. THACKWELL, 81ST PIONEERS.

In a paper entitled "Safety at Night in Frontier Warfare," published in the January 1909 number of the *United Service Journal of India*, Captain G. R. P. Wheatley describes a mechanical trip flare apparatus which has since proved successful in many parts of India. The weak point of this flare, I venture to suggest, however, lies in the fact that it will work only in the event of the wire being walked into (or stepped on), and that, should the wire be discovered, a pair of wire-cutters would at once put the whole apparatus out of action.

By a slight modification in the manner of setting up this apparatus, and in the materials used (as described below), better and more far-reaching results are obtainable, in that the flare will also ignite when the wire is cut.

The site for the flare having been decided, the ends of two wires are attached to an iron ring about $1\frac{1}{2}$ inch diameter. The wires are stretched taut, propped at intervals, and made fast at the farther ends to stout pickets driven into the ground, say, 60 yards on both sides of the flare.

The ring takes a male bamboo rod $1\frac{1}{2}$ feet long and 1 inch diameter, with a hole bored in the lower end, into which the glass tube $3\frac{1}{2}$ inches long, containing sulphuric acid is inserted. The tube passes between two nails driven through the female bamboo cylinder 2 inches above a joint in which a hole is bored to take the lower end of the tube. The cylinder, as in the original apparatus, contains a mixture of chlorate of potash and sugar.



The advantages claimed for this method of erecting the apparatus are :—

1. The flare ignites in the event of the wires on either side being *cut* or *run into*.
2. Danger of the tube breaking during process of setting up is reduced to a minimum.
3. Shorter tubes, thus effecting saving in original cost and carriage in the field.
4. In place of the bamboo cylinder a small hole in the ground with a few small stones packed round to secure the foot of the tube, with the mixture on top, has been found to suffice.

REVIEWS.

TWO BOOKS ON ORGANIZATION.

- [(i) "Vade-Mecum of Organization and Administration," 7th Edition, by Captain Demangel. (Forster, Groom & Co.) 2s. net.
(ii) "Organization: How Armies are formed for War," by Colonel Hubert Foster. (Hugh Rees & Co.) 3s. 6d net.]

The period which has elapsed since the conclusion of the war in South Africa has been one of reform in the military forces of the British Empire. A new organization has been gradually evolved, based on the actual needs of the Empire, and suited to its military system, but, at the same time, sufficiently elastic to meet all probable contingencies, and to allow of any subsequent expansion of the forces themselves. During this process of evolution while the military advisers of the Empire were themselves to a certain degree groping in the dark, official books of regulations and tables of establishments had necessarily to be of a provisional or temporary nature, and were undergoing constant change. As a consequence, many unofficial publications appeared purporting to give in a handy form the salient points of our organization, together with certain necessary details regarding the strengths and establishments of units, and these served a most useful purpose for a time, both as a guide to organization generally, and as a means of studying it for examinations. Captain Demangel's "Vade-Mecum of Organization and Administration" is one of these unofficial publications, and, as such, is both portable and well arranged. But with the issue of the present Field Service Regulations and the War Establishments of the Expeditionary Force, our organization may be said to have crystallized, and these regulations were definitely accepted by the Imperial Conference of 1909 as forming a basis of organization, throughout the Empire. They are the official hand-books on organization, and since they give the whole essence of the subject in a portable form, the *raison d'être* of the unofficial works has now ceased to exist.

But an official book of regulations must, above all things, be short and concise, and has not sufficient space in which to deal at length with all the arguments on which the organization is based. There is, consequently, great value to be obtained from books which deal with the history and the underlying principles of the subject. Colonel Foster's "Organization" will be found a very useful book by those who wish to study the question on its broader lines. He deals first with the principles of the organization of units and formations, and shows the value of recognized war establishments and the danger of improvised formations. The book then examines the organization of the British Army, and of those of the Great Powers, devoting a chapter to the question of national armies such as the German Landwehr and our own Territorial force. It then gives a

short history of organization, and concludes with two interesting chapters on the principles of command, and the psychological characteristics of armies. It is perhaps unfortunate that, when discussing British organization, Colonel Foster gives details of numbers which are liable to fluctuation, since a war establishment is continually varying from year to year. The consequence of this is that the book will require frequent new editions so as to keep it up to date, but these details can be omitted in the next edition. The inclusion of a chapter on the organization of our Colonial forces would be a useful addition.

Examinations: how to pass them.—By C. E. T. (Pioneer Press, Allahabad).

The object with which this pamphlet is written is to suggest a method of working to those who are unable, or who do not wish, to read with a crammer for examinations. The pamphlet deals more especially with Military Examinations, though the general method of work may be applicable to any subject. There can be no doubt that one of the main secrets of success in all forms of work is to apportion one's time carefully, and systematically, and many officers find a difficulty in doing this. To all those who are unable to evolve a system of their own, this book should prove a great assistance. After dealing with a general system, the various subjects of examination papers are taken one by one and hints are given as to how each should be learnt. The final chapter deals with military examinations in the field. It is probable that the result of work which is done in the manner suggested in the book will be more valuable and more permanent than that taught by a crammer. It is a pity, though, that the author refers still to "Combined Training" which has now been superseded by "Field Service Regulations," Part I.

A Russian view of the Imperial Conference.—Translated from the "Novoye Vremya," 3rd June 1911.

Twenty to thirty years ago self-help was the fundamental idea underlying English life. Instances of this are—the opposition to the idea of Old Age Pensions, the fact that education was carried out mostly in private owned schools, and the formation of independent Friendly Societies.

This spirit of self-help is gradually lessening and the idea of an all-powerful State managing everything is gaining ground.

The same struggle between two ideas is visible in the life of the British Empire. With the exception of India all the Colonies have enjoyed a high degree of independence.

Australia is beginning to waver in her faith in independence and to lean on the arm of England.

Other Colonies are willing to surrender a portion of their independence for mutual help in case of danger. Each Imperial Conference is a step in the exchange of separation and independ-

ence for closer union under the leadership of England. New Zealand has put forward a proposal which would finally subject the fate of that working man's republic to aristocratic-plutocratic England. This project is an Imperial Parliament and an Imperial Defence Committee, supplemented by a wish that the United Kingdom should be formed of a Federation of its component parts England, Scotland, Ireland and Wales.

New Zealand's proposal was not supported, but the fundamental idea received approval from all sides. It was considered desirable to arrange for a continual exchange of views between all parts of the British Empire.

The practical result of this process of political concentration will be an immense increase in the military power of England.



(d) By the G. O. C. Southern Army (*vide* Southern Army Order No. 95 of 1910).

"Co-operation in attack and defence between Infantry and the other arms. How is it best attained?"

The army orders quoted give all instructions and conditions.

VIII. GOLD MEDAL ESSAY, 1911-12.

The Council have selected the following as the subject for the Gold Medal Essay Competition for 1911-12.

"It appears to be generally recognized that the three principles of sea command, self-defence and mutual support must be the basis of any sound system of Imperial Defence."

^{*}(Page 33, Imperial Conference on the Naval and Military Defence of the Empire, 1909.)

"Discuss the responsibility of India in regard to the use of her existing military forces in giving effect to the above principles."

For further details see special slip.

The attention of competitors is drawn to the addition made to the conditions in the slip published with the July Journal. (9) Essays must not exceed 20 pages (exclusive of tables) of the size and style of the Journal.

IX.

The following books have been presented to the Library of the Institution:—
By Major-General Beresford Lovett, C.B., C.S.I.

Gazetteer of Central Asia, Part IV, Vols. 1 and 2, by Lt.-Col. C. M. MacGregor.

The Death March through the Khyber Pass, by Surgeon-Major E. Evatt.

Russia's Approach to India, by Sir E. Hamley.

Dupleix—Rulers of India Series.

Risings on the North-West Frontier, 1897-1898. (Pioneer Press.)

The Russians in Central Asia, by F. von Hellwald.

Reglement sur le service dans les places de guerre et les villes ouvertes—Paris, 1891

Map (Austrian) to illustrate Graeco-Turkish War.

Map to illustrate the Kalat Frontier Boundary Commission.

By Major A. Wilson, 8th Gurkhas—

Deutschland und England, by K. Bleibtreu, 1909.

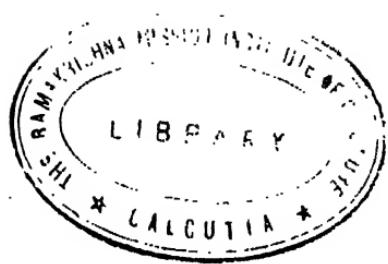
Fürst Bülow and Kaiser Wilhelm II, by R. Martin, 1909.

By Captain Watson Smyth, 1st Brahmans—

Organization, Administration and Equipment for India, by Captain Watson Smyth.

Major-General Beresford Lovett has also very kindly presented to the Institution a full-length printed picture shewing the uniform of the Bengal Infantry in Lord Lake's time, and a French officer's regulation sword knot.

^{*} Correspondence and Papers on the Naval and Military Defence of the Empire, 1909. Printed by Darling & Son, 34-40, Bacons St., London E. Price, 6d.





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